

The University of Southern Mississippi

NATURAL DISASTERS IN INTERNATIONAL AFFAIRS: FORMULATING
RECONSTRUCTION PLANNING IN NOAA

by

Nikola Marie Garber

Abstract of a Dissertation
Submitted to the College of Arts and Letters
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

December 2004

ABSTRACT

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As disasters continue to occur, the mission of Commerce and the National Oceanic and Atmospheric Administration (NOAA) will facilitate their continued involvement in disaster relief efforts and funding. Without documentation, recreating the past process and protocol improvement is very difficult. Thus, an operational, multifunctional framework was created for future the NOAA participation in international reconstruction funding efforts following a major natural disaster. The framework utilizes standard protocols (laws, policies, and processes) of the Federal government and the NOAA, while creating a clear and available mechanism for funding such endeavors and improving a fragmented and cumbersome process. With implementation of this framework, the NOAA can improve its internal processes (planning, operation, implementation, and evaluation) and enhance its impact in international natural disaster reconstruction efforts. Hence, this coordinated disaster framework will fill the need of a framework to withstand Administrative changes. Finally, this framework can be modified by other Federal government agencies by modifying the framework to reflect their own internal laws, policies, and processes.

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December 2004

ACKNOWLEDGMENTS

This research has been formulated over the past three years with input from numerous sources. Thus, I would like to thank my International Development (IDV) program professors, Mark M. Miller and David Butler; my fellow IDV classmates; James Murray of NOAA Sea Grant; and finally Robert Jubach and Curt Barrett of NOAA's NWS for their comments as my research topic took shape. Appreciation is also extended to my committee: Clifton Dixon, David Butler, Jay Grimes, Mark Miller, James Murray, Robert Aguirre, and Jim Franks for your efforts and comments during the process. Dr. Dixon, a special thanks is extended for those long hours spent working with me and answering those phone calls. Without the assistance of the following people, this dissertation would not have been possible: Mary Baker, James Cato, Ruperto Chaparro, Brian DiGiacomo, Rimas Liogys, Joseph Lombardo, Ed Sharp, Michelle McClelland, John Schwartz, and Audrey Solis. I look forward to working with some of you in the future to implement this framework. In the eleventh hour, my thanks are extended to Nicolás Alvarado Quiroz for assisting in the rewriting. Finally, my utter gratitude is extended to Gary Garber and Tooie Garber for moral support and encouragement throughout the process, but probably more importantly an outpouring of thanks is extended for the time you spent reading, commenting, and proofing this dissertation. Once again, thanks to all for making this study possible.

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LIST OF ABBREVIATIONS

AGO	Acquisition and Grants Office
CJSJ	Commerce, Justice, State and Judiciary
CR	Continuing Resolution
DOC	Department of Commerce
DOD/ACOE	Department of Defense/Army Corps of Engineers
DOI/BOR	Department of Interior/ Bureau of Reclamation
DUS	Deputy Under Secretary
DC	District of Columbia
FEMA	Federal Emergency Management Agency
FY	Fiscal Year
FAA	Foreign Assistance Act
FTE	Full-Time Equivalent
HQ	Headquarters
IAA	InterAgency Agreement
IDA	International Disaster Assistance
ITA	International Trade Administration
LAC	Latin America and Caribbean Bureau
LO	Line Office
NIST	National Institute of Standards and Technology
NMHS	National Meteorological and Hydrologic Services
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
NGO	Non-Governmental Organization
OAS	Organization of American States
OFDA	Office of United States Foreign Disaster Assistance
OMB	Office of Management and Budget
SG	Sea Grant
SO	Staff Office
SOW	Statement of Work
TVA	Tennessee Valley Authority
TS	Tropical Storm
U.S.	United States
USACE	United States Army Corps of Engineers
USAID	United States Agency for International Development
USG	United States Government
USGS	United States Geological Survey
WMO	United Nations' World Meteorological Organization
UPRSGCP	University of Puerto Rico Sea Grant College Program

CHAPTER I

INTRODUCTION

When Hurricane Mitch hit Latin America in 1998, thirteen federal agencies (Table 1) were coordinated through the United States Agency for International Development (USAID) to assist in recovery and reconstruction (United States Agency for International Development, 2003e).

The Hurricane Mitch reconstruction initiative was funded from a \$1 billion dollar emergency supplemental appropriation passed by Congress on May 21, 1999, signed by President Bill Clinton, and coordinated by USAID. Of the \$1 billion, \$902.8 million went to support Hurricane Mitch activities (United States Agency for International Development, 2003e, p. 7) (Table 2). The remainder of the funds was allocated for recovery and reconstruction activities in Central America and the Caribbean following Hurricane Georges in 1998 and Floyd, Lenny, and a Colombian earthquake in 1999 (United States Agency for International Development, 2003e) (Table 2).

The United States (U.S.) Department of Commerce (DOC) and its bureaus, the National Oceanic and Atmospheric Administration (NOAA), the National Institute of Standards and Technology (NIST), and the International Trade Administration (ITA) were allocated \$17.1 million to conduct reconstruction programs in Central America and the Dominican Republic (U.S. Department of Commerce, 2002, p. 14). These programs fell under the problem areas of: base infrastructure reconstruction, forecast and early warning systems, disaster preparedness and response, sustainable and resilient coastal communities, economic revitalization, and transnational watershed management. The

U.S. DOC budgets by problem area and country are listed in Table 3 (U.S. Department of Commerce, 2002, p. 14).

Table 1

Distribution of United States (U.S.) Government Supplemental Funds from the United States Agency of International Development (USAID) to Other U.S. Agencies for Hurricane Mitch Relief and Recovery (\$ million)

USAID	524.6
<i>Departments or Agencies with Direct Agreements with USAID</i>	
Department of Commerce, National Oceanic & Atmospheric Administration	16.0
Department of Interior, U.S. Geological Survey	13.2
Department of Agriculture	13.0
Department of Health & Human Services, Centers for Disease Control & Prevention	15.0
Federal Emergency Management Agency	3.0
Environmental Protection Agency	2.0
<i>Departments or Agencies Receiving a Transfer of Funds from USAID</i>	
Department of Housing and Urban Development	10.0
Department of Transportation, Volpe Center	2.0
U.S. Peace Corps	6.0
Export-Import Bank of the United States	2.7
Overseas Private Investment Corporation	1.0
U.S. Department of State	12.0
<i>Monitoring and Reporting</i>	
General Accounting Office	0.5
Total	621.0
Note: The U.S. Army Corps of Engineers received \$18.6 million under sub-agreements with USAID country missions	

Note. Adapted from “Mission accomplished: The United States completes a \$1 billion hurricane relief and reconstruction program in Central America and the Caribbean,” by United States Agency for International Development (Bureau for Latin America and the Caribbean), n.d., In *PN-ACQ-999*, p. 6.

This was NOAA’s first experience with such a large international effort encompassing numerous partners from federal, private, and international organizations. Those involved in management of the Hurricane Mitch activities (Robert Jubach, NOAA Hurricane Mitch Agency Program Manager; Dr. James Murray, NOAA Sea Grant; Mary Baker, NOAA Ocean Service; and Michelle McClelland, Department of Commerce office of the General Counsel) discussed a need for a documentation of NOAA’s involvement, with recommendations for future efforts. However, this never occurred because of a change in the U.S. government administration and personal workloads of

program staff, leading to the need for a coordinated disaster framework that can withstand Administrative changes. Therefore, this dissertation focuses upon creating the framework of the recommendations for future efforts including proposed process and policy changes for NOAA directed future international reconstruction efforts following a major natural disaster.

Table 2

“Call to Action.” Total United States Government Assistance (\$ million) for Relief and Recovery in Central America and the Caribbean Following Major Natural Disasters in 1998 and 1999.

Countries Assisted (<i>Estimated number of dead & missing</i>)	Existing Resources & Debt Relief	Supplemental Appropriation	Total
Hurricane Georges			
Dominican Republic (200)	42.5	38.4	80.9
Haiti (400)	14.1	11.9	26.1
Eastern Caribbean (5)	1.9	3.5	5.4
<i>Subtotal</i>	58.5	53.7	112.3
Hurricane Mitch			
Honduras (14,000)	238.3	324.9	563.2
Nicaragua (3,500)	57.4	113.0	170.4
Guatemala (440)	42.5	35.9	78.4
El Salvador (370)	19.4	35.1	54.5
Costa Rica (6)	-	9.0	9.0
Central America Regional	-	27.3	27.3
<i>Subtotal</i>	357.7	545.1	902.8
Earthquake			
Colombia (1,000)	2.0	10.1	12.1
Hurricane Floyd			
Bahamas (1)	-	1.0	1.0
Hurricane Lenny			
Eastern Caribbean (7)	0.1	5.1	5.2
Undistributed by area	-	6.0	6.0
TOTALS	418.2	621.0	1,039.4

Note. Adapted from “Mission accomplished: The United States completes a \$1 billion hurricane relief and reconstruction program in Central America and the Caribbean,” by United States Agency for International Development (Bureau for Latin America and the Caribbean), n.d., In *PN-ACQ-999*, p. 7.

Table 3

The United States Department of Commerce's Budget by Country for Reconstruction Activities in Central America and the Dominican Republic for Each Overall Problem Area (\$ thousands).

Problem Area	Honduras	Nicaragua	Guatemala	El Salvador	Dominican Republic	Regional
Base Infrastructure Reconstruction	1,808	1,789	938	974	0	1,293
Forecast and Early Warning Systems	1,615	1,580	665	365	0	300
Disaster Preparedness and Response	318	344	318	161.5	100	532
Sustainable, Resilient Coastal Communities	584	613	0	178.5	525	799
Economic Revitalization	0	0	0	0	0	200
Transnational Watershed Management	0	0	0	0	0	1,100
Total Country Budget	4,325	4,326	1,921	1,679	625	4,224
Total Project Budget	17,100					

Note: The U.S. DOC also “executed an agreement with the USAID Mission in Nicaragua for the Nicaragua Small Shrimp Producer Assistance Program. The budget for activities under this agreement totaled \$1,280,000.” Adapted from “Annual Report FY 2002,” by United States Agency for International Development, 2002, In *I.A. Macfadden & Associates, Inc.*, p. 14.

Statement of the Problem

Defining, evaluating, determining, and explaining the significance, importance, and value of a government international aid program is a formidable task due to the internal documentation and the numerous people and multiple agencies involved. Many of these agencies have their own processes in place and the people within or between agencies never interact. Of significant value would be a step-by-step narration, recounting and explaining the processes involved from inception of the program to completion. This would provide enough information to create a template or framework to address similar future natural hazards and/or disasters, saving time, taxpayer money, and potentially lives of the people in need of the aid. Currently, it is difficult to find more

than an overview of the evolution of any funded aid program. Peer reviewed papers of such endeavors are rare because funding is not normally allocated to conduct evaluations. If an evaluation is conducted, by either an outside group or by an internal employee, the final report becomes property of the federal government. Thus it is either published as an agency report or is simply put on the shelf. Academics have not attempted to record such efforts because of a lack of access and the difficulty in securing information and a lack of understanding of the internal processes.

Since government budgets are continually modified and changed based on the needs of the activities, tracking the allocation of funding can be difficult, as final funding actions are the result of numerous internal discussions, debates, compromises, and deal-making that are never fully detailed in official documents. When an evaluation of a program is conducted, the evaluation analyzes only the outcome and outputs of the funding allocation. The steps and discussions undertaken in numerous planning sessions to reach the final budget allocation is not compiled in one document due to time constraints of each individual worker who has numerous other responsibilities, the lack of interest by those involved who want to see only the outcomes and outputs of the dollars spent, and the difficulty of measuring activities that are more of an art than a science. Thus, final documents are often made to be as concise as possible for transmittal to Congress, another agency, or the taxpayer.

The hurricane relief and reconstruction program that provided \$1 billion for Central America and the Caribbean is summarized by USAID in a 15-page final document, referred to as “*Mission Accomplished* (United States Agency for International Development, 2003e).” This sort of synopsis may provide adequate detail for some

needs, and may provide a basic overview, but these documents lack in the detail needed for assessing and improving the intricate process of allocating, obligating, and expending the reconstruction funding in NOAA. Even though several USAID and NOAA final reports discussing lessons learned and outcomes of the Hurricane Mitch funding in Central America were located, none of these reports created an operational, multifunctional framework for future NOAA participation in international reconstruction funding efforts following a major natural disaster. Instead, these reports focused on the overall use of the funds, but did not detail from where the funds came. For example, "...a total of 16 automatic weather stations, 31 automatic rain gage stations, and 3 automatic stream gage stations were installed throughout the region. These stations provide data for weather and hydrologic forecasting as well as climatological assessments" (U.S. Department of Commerce, 2002).

Thus it is important to have a framework for when the next disaster occurs, NOAA could use the framework to improve response capabilities and the time taken at each step. Also new employees could use this framework and improve upon it instead of spending time and resources recreating a process, leaving less time and resources to spend on the disaster recovery efforts themselves.

In Washington, D.C., the overall political climate plays a role in deciding the level of support an Administration is willing to provide to an agency project or activity (Baird, 1996). When the political parties trade power, the current political appointees that are scattered throughout the federal government are often relieved of duty, and with their departure goes one of the only working archives of institutional knowledge about the disaster-relief funding process and archive only accessible through direct contact.

The permanent staff (civil servants) are still present, but usually are not involved in the Department level discussions and decision-making. As with any new job, each person has little to no prior knowledge of their predecessor's activities or the office structure because there is little time, if any, to transmit the knowledge of the position from one employee to the next. There are also no guidelines or a framework with which to conduct the activities of the position as time requirements do not allow the previous employee the opportunity to create such a document. Finally, when an employee leaves, it can take months to hire a replacement, in which time the position duties may have been changed.

New political appointees are selected, if necessary confirmed by the Senate, and can then begin working only after security background investigations are finished. During this time a civil servant may conduct the vital functions of the political position, but may not have the background knowledge, as the civil servant had not been working in this capacity. Then, after new appointees begin their positions, time is needed to learn the issues and assess the next steps needed before implementation of any activity. Hence the need for a coordinated disaster framework that can withstand Administrative changes.

As U.S. Ambassador to Honduras, Frank Almaguer, stated in his opening address at the all-USG agency conference in Tegucigalpa, Honduras in November 1999 (United States Agency for International Development, 1999a):

The US government has done something extraordinary here. It has requested the participation of as many federal agencies as possible...This approach brought headaches (in the past) but we learned a lot....As you all know, it is not easy to coordinate work in Washington [because each agency does not know all the personnel doing similar activities in another agency]. It is very complicated to

coordinate agencies not used to dealing in foreign affairs....In Honduras there are fourteen federal agencies and we must all work together. There are two objectives, what we are trying to do and to obtain cooperation from one another.

Unfortunately, such a transfer of political power occurred during the Hurricane Mitch reconstruction efforts. Due to the outcome of the November 2000 elections, many key political positions were vacated, including those persons heading the Hurricane Mitch initiative (David Festa, DOC Senior Advisor to the Secretary of Commerce and Valerie Blatnik-Siegel, NOAA liaison to DOC) and the Under Secretary of Commerce for Oceans and Atmosphere (Dr. James Baker, Administrator of NOAA) (Figure 1). These positions remained vacant for almost a year and in that time were run by the deputy Under Secretary of Commerce for Oceans and Atmosphere (Scott Gudes, civil servant).

Running parallel with the political appointee climate after an election is permanent bureaucratic issues: the aging population (those close to retirement) and personal desires. Across the government, within five years, 50 percent of all federal workers will be eligible to retire, which is less than it was three years ago (Zeller, 2004). The other factor, personal desire, plays heavily, as a number of workers and managers in the Washington, D.C., area change jobs, possibly numerous times, throughout their career. These changes occur based on the requirements of the position/organization, a desire for promotion, the proximity to home and family, and personal desires to pursue another topic or occupation. When these key individuals retire or leave, so does the intellectual working knowledge of the disaster-relief funding process as no structural means are in place to capture this information while working or before they depart.

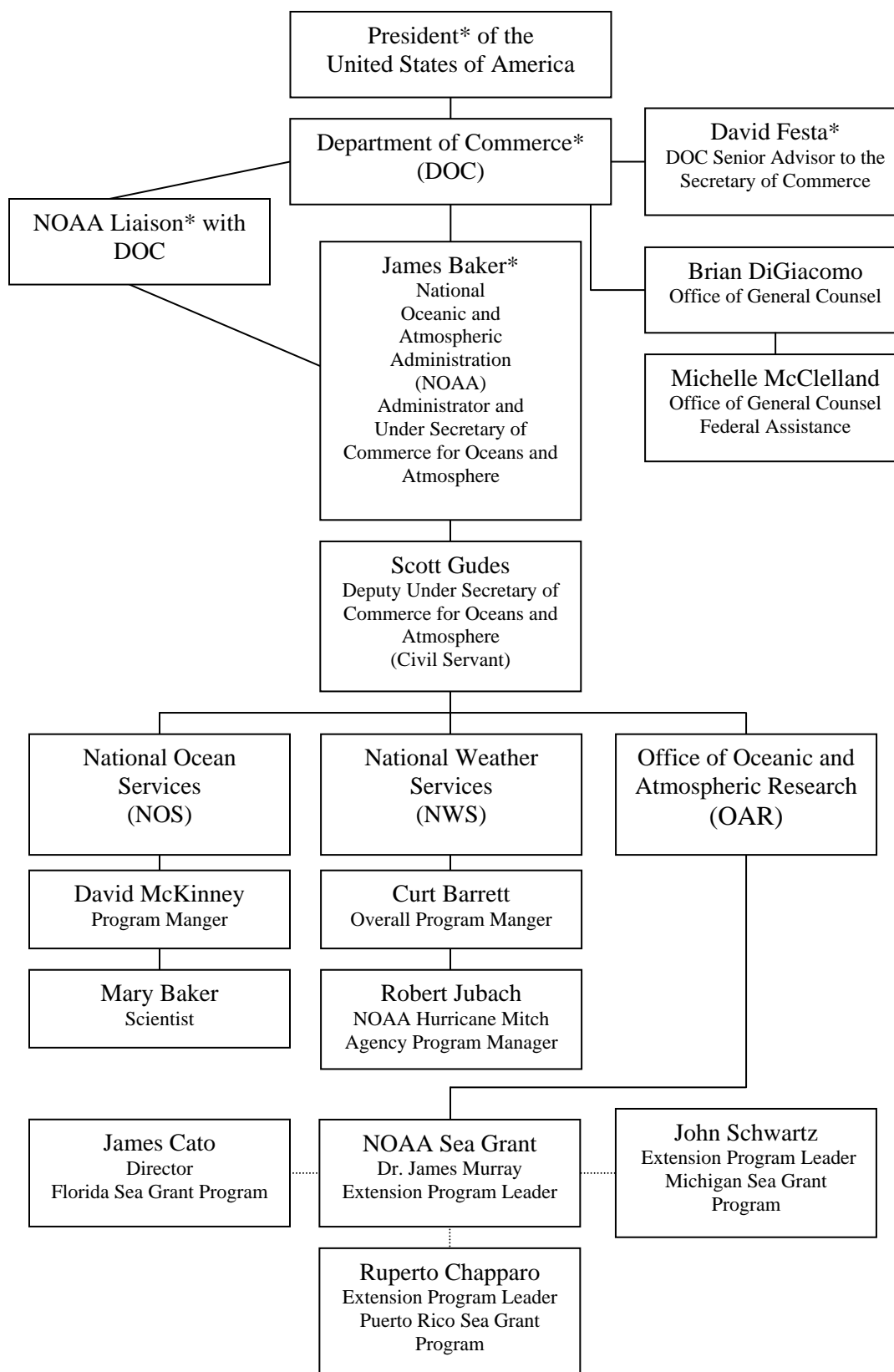


Figure 1. Organizational Chart of NOAA Hurricane Mitch Political and Civil Servant Positions. * Indicates a Political Position Vacated After the November 2000 Elections.

Fully documenting the spending path of the one billion dollars appropriated in the emergency supplemental appropriations fiscal year (FY) 1999 bill is in some ways an unrealistic endeavor because of the number of projects funded through the 14 agencies. However, spending of this emergency supplemental appropriations must follow appropriation laws. Thus, this money was appropriated to USAID, who then transferred approximately \$112 million (Table 1) to thirteen other federal agencies (United States Agency for International Development, 2003e). Of this \$112 million, this dissertation will focus on the \$17.1 million allocated to NOAA. Although appropriation laws are clear, each agency has different internal protocols, thus documenting the path the money took in numerous agencies would be beyond the scope of a single study. Access to NOAA personnel and paperwork, though, was obtainable, thus making NOAA a viable agency to study. NOAA, then, as one of the 13 federal agencies receiving funding from USAID, can be used to illustrate general government funding processes for all agencies.

This dissertation presents a question as to the effectiveness of the process of obligating funding for international disaster relief. Based on consultation of the dissertation chair and committee, it was decided that a case study framework should be used to create a framework for funding disaster relief efforts through NOAA, which had never been created. To develop a framework, the standard protocols (laws, policies, and processes), currently utilized by the Federal government and NOAA, were researched using archival searches.

The Issue

NOAA needs a framework to streamline its participation in the funding of international reconstruction efforts after a major natural disaster strikes. As disasters

continue to occur, the mission of Commerce and the NOAA will facilitate their continued involvement in disaster relief efforts and funding. Without documentation, recreating the past process and protocol improvement is very difficult. Thus, this blueprint will create a clear and available model for funding international reconstruction efforts at levels set by the Congress and/or USAID. If implemented by the NOAA, this blueprint will improve the current fragmented process of allocating the funding for these efforts, thus filling the need of a coordinated disaster framework that can withstand Administrative changes.

Thesis

This study is undertaken to assess and improve the intricate process of allocating, obligating, and expending the reconstruction funding in the NOAA.

The Question

How, if at all, does the NOAA enhance its international natural disaster reconstruction efforts through improving NOAA's internal processes (planning, operation, implementation, and evaluation)?

Overview of Document

This dissertation first reviews theories created to explain the changes that occur in national policy settings and in the Federal Government spending methods. The literature review continues with defining hazards and disasters and how they are categorized.

Following this review is a:

- Discussion of development relief and reconstruction after an international natural disaster occurs;
- Review of the emergency disaster processes, including the policy of declaring an international disaster;

- Review of the funding mechanisms of an emergency supplemental bill;
- Detailed description of the laws that dictate an InterAgency Agreement;
- Description of the transfer of agency authority; and
- Review of the federal government policies and processes associated with international natural disasters.

Included in this is a review of the U.S. Government interest in declaring international natural disasters, the history and mission of USAID and the NOAA, and the theory of international aid. For aid to be spent, a spending mechanism must be in place, therefore reviews of the federal government standard budget process follow. This includes the NOAA's standard budget process and allocation, obligation, and expenditure of appropriated funds, and the spending vehicles required by policies and procedures.

CHAPTER II

LITERATURE REVIEW

Theory

Numerous theories and models have been created over the decades to explain the changes that occur in national policy settings and in the Federal Government spending methods. Davis, Dempster, and Wildavsky (1974) created models that postulated that budgetary decisions had a constant style except when disrupted by exogenous (outside) forces. The difficulty in predicting budgetary change, though, was predicting the exogenous forces. Thus other theories and models, including decision theory, theory of jurisdictional dynamics, and the theory of punctuated equilibrium, have incorporated combinations of exogenous and endogenous (inside) factors (Simon, 1957; Simon, 1983; Simon, 1985; Carmines & Stimson, 1989; Baumgartner & Jones, 1993; Dodd, 1994; Jones, 1994; Kelly, 1994; Jones, Baumgartner & True, 1996; Jones, Baumgartner & True, 1998; Baumgartner, Jones & MacLeod, 2000).

Decision theory has its roots in bounded rationality theory, the idea that the human decision makers need to use some aid to assist in the calculation of an outcome or in accomplishing a task (Simon, 1957; Simon, 1983; Simon, 1985). In other words, the decision maker needs some boundaries like decision rules, such that when x happens, y should be the outcome. In this scenario, when something occurs, the outcome would always be the same. For example, when an international natural disaster occurs (Hurricane Mitch) (x), the U.S. Government will pass an emergency supplemental bill giving USAID funds for reconstruction activities (y).

As a part of decision theory, Jones (1994), though, took Simon's (1983) idea of decisional agenda setting using selective attention further. Jones (1994) discussed the possibility of a change in the decision rules based on shifts in selective attention, changing the outcome. Thus Jones's created the theory of abrupt shifts in choice to describe changes in outcomes expected from the bounded rationality theory (Jones, 1994). Following the example above, when Hurricane Mitch occurred, President Clinton declared the need for an all-cabinet response. Thus, when x occurred, a natural disaster - Hurricane Mitch, the usual y did not occur, USAID only receiving the emergency supplemental funds for reconstruction activities. Instead, USAID received the funds, but needed to involve other agencies. The abrupt shift was that 13 other Federal agencies needed to be involved with the reconstruction activities.

Baumgartner, Jones, and MacLeod (2000) describe the theory of jurisdictional dynamics as the balance of the U.S. Congressional committees between competition "for control over new issues as they arise and for the continued authority in areas where jurisdiction has previously been granted" (p. 323). Today, Congress considers a greater number of issues than in the past. For example, during the study period of 1947-1994, there were 67,291 congressional hearings of which the number of distinct subtopics "has increased from approximately 100 to about 180" (Baumgartner et al., 2000, p. 343). This increase in subtopics (issues) has led to a sustained increase in staff size. With the diversity of committee interests, an increase in staff is necessary. This increase in staff size also keeps the issue areas diverse because of individual staff expertise and overlap of Congressional committee issue areas. Thus jurisdictional entropy is created. The same mechanism, though, "that leads to jurisdictional entropy also gives policy entrepreneurs

the opportunity to press for change” (Baumgartner et al., 2000, pp. 345-6). Thus, for natural disaster and policy funding changes to occur, there are more committees that could be studying and discussing the issue, thus more chances for change to occur. On the other hand, because of the numerous committees that oversee part of the same issue, there is a possibility that nothing will change.

The theory of punctuated equilibrium, as described in further studies by Jones, Baumgartner, and True (1998), is a process caused by both exogenous and endogenous factors creating alternating periods of dramatic change and relative stasis. As a precursor to this work, punctuated equilibrium in policy making was described by Baumgartner and Jones (1993) as changes in attention to certain topics, programs, and issues over time. Jones, Baumgartner, and True (1998), continued work on the theory of punctuated equilibrium by “providing empirical evidence that punctuations occur not only at the level of the issue-area...but also throughout the national government as a whole” (p. 25). These authors address the act of policymaking:

In policy making, new ways of thinking about public problems, rapid mobilizations of new constituencies, changes in institutional structures, and the self-reinforcing effects of these trends occasionally combine to create dramatic and unpredictable policy changes in an issue-area. Such punctuations are an important part of policymaking even if most policies most of the time are subject to no such dramatic events. Rather than making moderate adaptive adjustments to an ever-changing environment, political decision making is characterized sometimes by stasis, when existing decision designs are routinely employed, and sometimes by punctuations, when a slowly growing condition suddenly bursts

onto the agendas of a new set of policymakers or when existing decision makers shift attention to new attributes or dimensions of an existing situation. Complex interactive political systems do not react slowly and automatically to changing perceptions or conditions; rather, it takes increasing pressure and sometimes a crises atmosphere to dislodge established ways of thinking about policies. The result is periods of stability interspersed with occasional, unpredictable, and dramatic change (Baumgartner & Jones, 1993; Carmines & Stimson, 1989; Dodd, 1994; Jones, 1994; Jones et al., 1996; Kelly, 1994). (Jones et al., 1998, p. 2)

Thus, in the example of Hurricane Mitch, new thinking was implemented, utilizing USAID and 13 other Federal agencies. Each of these agencies, based on their mission, has appropriate expertise for international reconstruction efforts in Central America.

Case analysis and general observations have provided most of the evidence for punctuated equilibrium theory until this study by Jones, Baumgartner, and True (1998) which utilized rigorous quantitative analysis with a new dataset classifying “federal spending in a consistent way for the entire budget and for the entire postwar period” (p. 2). Punctuations are “not easily associated with the ebb and flow of political and economic forces” (Jones et al., 1998, p. 3). This theory of punctuated equilibrium was needed because the Jones, Baumgartner, and True (1998) studies showed that budgets and policies do not simply adjust to economic shifts, electoral change (change in political parties), or public opinion. If budgets and policies, then, do not adjust to one of these factors, policy changes should be expected “to correspond roughly to changes in general understandings of the proper role of government” (Jones et al., 1998, p. 5). As these

changes maybe difficult to predict, both in timing and magnitude, it is necessary to be ready for the change.

Thus, punctuated equilibrium theory could validate the mobilization of 13 Federal agencies through USAID for reconstruction efforts in Central America following Hurricane Mitch. It was an idea that was waiting to happen and the correct crisis occurred. A change in thinking that occurred was utilizing other USG agencies. Then immediately there was a need to create a process to implement President Clinton's requirements, as well as the Congressional requirements found in the emergency supplemental spending bill. Now a framework (model) needs to be created to ensure that similar future activities can be streamlined.

As decision theory, the theory of jurisdictional dynamics, and punctuated equilibrium all state, changes in public policy arise because of exogenous and/or endogenous factors. Between times of change, there are periods of stasis. Thus, the existing decision design, utilizing other USG agencies through USAID in international reconstruction efforts, should be used. To employ a streamlined process in the next international reconstruction effort, the coordinated disaster framework created in this dissertation should be utilized for it can withstand Administrative changes and the bureaucratic issues of an aging population and personal desires.

Natural Hazards And Disaster Overview

Natural disasters occur worldwide, at any time, with or without warning. No area can be considered free from potential natural disasters. Preparedness for such events can lessen the human, economic, and societal toll, and decrease the probability that a natural hazard will invoke a natural disaster.

A natural hazard is a “threatening event, or probability of occurrence of a potentially damaging phenomenon within a given time period and area” (UN-DHA, 1992). Another variation of the definition of a natural hazard is “the threat of a dangerous magnitude of a natural process” (Hydroconsult, n.d., p. 3). Natural hazards that occurred in Central America as a result of Hurricane Mitch included tropical storms with high winds, storm surge and waves, heavy precipitation, floods, mudslides, droughts, and fires (United States Agency for International Development, 1999b, pp. Annex A, 5). Central America was extremely vulnerable to a variety of impacts from Mitch for a number of reasons, including the length of the storm (seven days), pre-existing civil strife (affecting capacity to respond), and the lack of a land-use management template (environment more susceptible to hazards) (Schulz & Schulz, 1994; United States Agency for International Development, 2002a; United States Agency for International Development, 2003e).

In 1961, Charles Fritz, one of the earliest pioneers in social science disaster studies, coined the following disaster definition. “...an accidental or uncontrollable threat, concentrated in time and space, in which a society, or a relatively self-sufficient subdivision of a society, undergoes severe danger and incurs such losses to its members and physical appurtenances that the social structure is disrupted and the fulfillment of all or some of the essential functions of the society is prevented” (Fritz, 1961, p. 655). This definition has remained practical even after the first assessment in 1972 on natural hazard research and is the one that will be utilized in this dissertation. Since that time, other people and organizations have modified Fritz’s definition slightly for clarity of the disasters now occurring.

The following paragraphs describe these modified definitions. The definition of a disaster from the UN-DHA's internationally agreed glossary of basic terms (1992) is:

a situation or event, which overwhelms local capacity, necessitating a request to the national or international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction and human suffering. Though often caused by nature, disasters can have human origins. Wars and civil disturbances that destroy homelands and displace people are included among the causes of disasters. Other causes can be: building collapse, blizzards, drought, epidemic, earthquake, explosion, fire, flood, hazardous material or transportation incident (such as a chemical spill), hurricane, nuclear incident, tornado, or volcano. (UN-DHA, 1992)

As Harriet C. Babbitt (Deputy Administrator of USAID in 2000) stated at the Inter American Development Bank's annual meeting of governors, "We also need to increase appreciation for the role human behavior plays in disasters. Natural disasters are not all 'natural.' Nature provides the hurricane, or the earthquake; but we make ourselves more or less vulnerable..." (United States Agency for International Development, 2000, p. 2).

Natural "disasters are widely defined as the impact of abnormal or infrequent natural hazards on communities or geographical areas which are vulnerable to such hazards, causing substantial damage, disruption and possible casualties and leaving the affected communities unable to function normally" (Benson, n.d., p. 1). Natural disasters can include hurricanes, typhoons, earthquakes, tsunamis, tornadoes, droughts, blizzards, thunderstorms, floods, forest fires, and volcanic explosions (UN-DHA, 1992).

The response of a population before and after a disaster can have as much to do with the outcome of an event as the disaster itself. As Charlotte Benson, a consultant specializing in economic aspects of disasters, stated, “natural disasters concern the interaction of natural hazards and socio-economic systems rather than hazards per se” (n.d., p. 1). In the aftermath of a natural disaster, the challenge to rebuild can be an opportunity or an impossible burden. An impacted community could embrace this challenge as an opportunity, a chance to sustainably rebuild and increase the efficiency of its economy by streamlining and modernizing activities and infrastructure. The aftermath could also be seen as an impossible and overwhelming burden, causing the community simply to rebuild as before the disaster without learning any lessons. Finally, the community may only partially rebuild, seizing only part of the opportunity.

Ongoing research of natural disasters encompasses fields of study such as disaster research, collective behavior, sustainable development, and environmental studies while incorporating functionalism and systems-oriented perspectives (Weller & Quarantelli, 1973; Giddens, 1984; Stallings & Quarantelli, 1985; Wenger, 1987; Gramling & Freudenburg, 1992; Blaikie, Davis & Wisner, 1994; Dynes & Tierney, 1994; Schnaiberg & Gould, 1994; Tierney, 1994; Cable & Cable, 1995; Hannigan, 1995; Buttel, 1997; Beatley, 1998; Bolin & Standford, 1998). The research of natural disasters co-exists with social theory emphasizing factors such as conflict, competition, and social inequality. The social science research community is now much more aware that “hazard vulnerability is accompanied by the inability to prepare and to respond effectively when disaster strikes, and that these patterns are in turn related to broader patterns of social and economic inequality” (Tierney, Lindell & Perry, 2001, p. 247).

This social and economic inequality affects part of the populations ability, due to their position in the stratification system, to access "preparedness and response resources and influences the ability to recover from disaster victimization" (Tierney et al., 2001, p. 248). Populations in less-well-off countries realize this disproportionately after a disaster strikes because the institutional capacity to protect the population and respond effectively after the disaster is lacking. Therefore, if there is to be U.S. government aid for assisting such countries in reconstruction activities after a disaster, it is imperative that the U.S. government distributes funds quickly and efficiently so that lower stratified groups in these less developed countries can rebuild.

Hurricane Categorizations

Different scales categorize the types of natural disasters. The NOAA's National Weather Service (NWS) categorizes hurricanes by their force, and further ranks them by the human and economic impacts they have on the United States.

The system used to determine the "strength" of the hurricane is the Saffir-Simpson Hurricane Scale. The Saffir-Simpson Hurricane Scale is defined by the pressure and wind of the storm, as well as the storm surge (Jarrell, Mayfield, Rappaport & Landsea, 2001, p. 3). This scale assigns a 1-5 rating based on the hurricane's present intensity. This numerical assignment is used to give an estimate of the potential flooding and property damage expected along the vulnerable coastal areas following hurricane landfall. The wind, pushing the water up and over the continental shelf, plays a determining role in the height of the storm surge. The surge levels are highly dependent on the slope of the continental shelf where landfall occurs. All wind speeds are clocked using the U.S. 1-minute average (Tropical Prediction Center, n.d.).

Every hurricane or tropical cyclone is not considered major. Table 4 shows the wind speeds and storm surge associated with category 1-5 hurricanes. Jarrell *et al* (2001) defines a major hurricane as a category 3, 4, or 5 hurricane, comparable to a Great Hurricane in other publications.

Table 4

Saffir-Simpson Hurricane Scale

Category	Winds (mph)	Winds (kt – Knots)	Storm surge generally X ft. above normal	Damage
1	74-95	64-82	4-5	Minimal
2	96-110	83-95	6-8	Moderate
3	111-130	96-113	9-12	Extensive
4	131-155	114-135	13-18	Extreme
5	> 155	>135	>18	Catastrophic

Note. Adapted from “The deadliest, costliest, and most intense United States hurricanes from 1900 to 2000 (and other frequently requested hurricane facts),” by Jarrell, et al., 2001, In *NOAA Technical Memorandum NWS TPC-1*, Table 1.

When a hurricane strikes, the resulting damage could be used to unofficially categorize that hurricane. More appropriately, the information provided by the Saffir-Simpson Hurricane scale can be used by coastal residents to prepare for a hurricane’s arrival. The following is what NOAA’s NWS Tropical Prediction Center states can be expected from each hurricane category on the Saffir-Simpson scale (Tropical Prediction Center, n.d., p. 1):

Category 1 - No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Some damage to poorly constructed signs. Also, some coastal road flooding and minor pier damage....

Category 2 – Some roofing material, door, and window damage of buildings. Considerable damage to shrubbery and trees with some trees blown down. Considerable damage to mobile homes, poorly constructed signs, and

piers. Coastal and low-lying escape routes flood 2-4 hours before arrival of the hurricane[’s] center. Small craft in unprotected anchorages break moorings....

Category 3 – Some structural damage to small residences and utility buildings with a minor amount of curtainwall failures. Damage to shrubbery and trees with foliage blown off trees and large trees blown down. Mobile homes and poorly constructed signs are destroyed. Low-lying escape routes are cut by rising water 3-5 hours before arrival of the center of the hurricane. Flooding near the coast destroys smaller structures with larger structures damaged by battering from floating debris. Terrain continuously lower than 5 ft above mean sea level may be flooded inland 8 miles (13 km) or more. Evacuation of low-lying residences with[in] several blocks of the shoreline may be required....

Category 4 – More extensive curtainwall failures with some complete roof structure failures on small residences. Shrubs, trees, and all signs are blown down. Complete destruction of mobile homes. Extensive damage to doors and windows. Low-lying escape routes may be cut by rising water 3-5 hours before arrival of the center of the hurricane. Major damage to lower floors of structures near the shore. Terrain lower than 10 ft above sea level may be flooded requiring massive evacuation of residential areas as far inland as 6 miles (10 km)....

Category 5 – Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. All shrubs, trees, and signs blown down. Complete destruction of mobile homes. Severe and extensive window and door damage. Low-lying escape routes are cut by rising water 3-5 hours before arrival of the center of the

hurricane. Major damage to lower floors of all structures located less than 15 ft above sea level and within 500 yards of the shoreline. Massive evacuation of residential areas on low ground within 5-10 miles (8-16 km) of the shoreline may be required....

With the advent of warning systems and the preparation and execution of preparedness plans in the U.S., the loss of life has decreased (Table 5). The loss of life statistics, though, could be misleading and lull the U.S. population into thinking that with the advanced technology the U.S. now utilizes, loss of life in future hurricanes will not occur. Max Mayfield, spokesman for the National Weather Service hurricane warning service and Director of the Tropical Prediction Center, as well as former National Hurricane Center Director, has “repeatedly emphasized the great danger of a catastrophic loss of life in a future hurricane if proper preparedness plans for vulnerable areas are not formulated, maintained and executed” (Jarrell et al., 2001, p. 5). If Central American governments had implemented warning and evacuation procedures similar to those in the U.S., the loss of life could have been greatly decreased. As well, property may have been protected, minimizing the damages that occurred.

As seen in Table 5, in the last thirty years, only three tropical cyclones (hurricanes) made the list of the deadliest. These three, Agnes (1972, #16), Alberto (1994, #30), and Floyd (1999, #20) did not even make it into the top fifteen and were only category 1-3. This could indicate hurricanes have not been as strong or as deadly in the past thirty years (no category 4-5 recorded), that the U.S. is more prepared, or a combination of both (Table 5). Even if only part of the loss of life can be attributed to

preparation in the U.S., the technology and training utilized could be shared with other countries. Thus, such investments in Central American infrastructure, for instance weather radios (technology) and evacuation procedures (training), would decrease the loss of life in the next disaster (Jarrell et al., 2001).

Table 5

The Thirty Deadliest Mainland United States Tropical Cyclones 1900-2000.

Rank	Hurricane	Year	Category	Deaths
1	TX (Galveston)	1900	4	8000
2	FL (SE/Lake Okeechobee)	1928	4	1836
3	FL (Keys)/ S TX	1919	4	600
4	New England	1938	3	600
5	FL (Keys)	1935	5	408
6	AUDREY (SW LA/N TX)	1957	4	390
7	NE U.S.	1944	3	390
8	LA (Grand Isle)	1909	4	350
9	LA (New Orleans)	1915	4	275
10	TX (Galveston)	1915	4	275
11	CAMILLE (MS/SE LA/VA)	1969	5	256
12	FL (Miami)/MS/AL/Pensacola	1926	4	243
13	DIANE (NE U.S.)	1955	1	184
14	SE FL	1906	2	164
15	MS/AL/Pensacola	1906	3	134
16	AGNES (FL/NE U.S.)	1972	1	122
17	HAZEL (SC/NC)	1954	4	95
18	BETSY (SE FL/SE LA)	1965	3	75
19	CAROL (NE U.S.)	1954	3	60
20	FLOYD (Mid Atlantic & NE U.S.)	1999	2	56
21	SE FL/SE LA/MS	1947	4	51
22	DONNA (FL/Eastern U.S.)	1960	4	50
23	GA/SC/NC	1940	2	50
24	CARLA (N & Central TX)	1961	4	46
25	TX (Velasco)	1909	3	41
26	TX (Freeport)	1932	4	40
27	S TX	1933	3	40
28	HILDA (Central LA)	1964	3	38
29	SW LA	1918	3	34
30	SW FL	1910	3	30
30	ALBERTO (NW FL, GA, AL)	1994	TS	30

Note. TS = Tropical Storm. Adapted from “The deadliest, costliest, and most intense United States hurricanes from 1900 to 2000 (and other frequently requested hurricane facts),” by Jarrell, et al., 2001, In *NOAA Technical Memorandum NWS TPC-1*, Table 2.

If hurricanes are ranked on the economic scale of cost (unadjusted), six of the top ten in history occurred in the 1990s (Table 6). As population and wealth have increased dramatically over the last several decades, it would seem a reasonable conclusion that hurricanes will continue to be more costly along susceptible coastlines (Pielke & Landsea, 1998). Thus, for a true comparison of the trends of the monetary damage of hurricanes, impacts should be normalized utilizing inflation and changes in coastal population and wealth (Pielke & Landsea, 1998). Once the damage is normalized using inflation, personal property increases, and coastal county population changes to the year 2000, the recent trend of increasing monetary damage disappears (Pielke & Landsea, 1998). Hurricane Andrew (1992) is the only hurricane from the 1990s remaining in the top ten (Table 7) (Jarrell et al., 2001). Six of the top ten costliest hurricanes in history occurred before 1950; three others occurred in the 1960s. Of the hurricanes from eleven to thirty, Floyd (1999), Fran (1996), and Opal (1995) are the only other tropical cyclones from the 1990s to appear in the ranking as 24, 27, and 28, respectively.

When the data from Table 6 is normalized, multiple decade variations can be easily compared in Table 7. Less damage occurred during the 1970s and 1980s than during the preceding decades. The early 1990s monetary damage approached the high level of impact seen in the 1940s through 1960s. This demonstrates that the damage of the early 1990s is not an anomaly and should not be utilized as such in policy-making discussions. The bulk of hurricane damages, over 83%, are accounted for by the intense hurricanes (Saffir-Simpson 3, 4, and 5) (Pielke & Landsea, 1998). Thus as a category 5 hurricane, the information provided by Pielke and Landsea (1998) concludes Hurricane Mitch would have caused high monetary damages and high death tolls without warning

systems and preparedness plans in place. This prediction was correct for the technology and training were not in place.

Table 6

Costliest United States Hurricanes 1900-2000 (Unadjusted) in Dollars

Rank	Hurricane	Year	Category	Damage
1	Andrew (SE FL, SE LA)	1992	5	26,500,000,000
2	Hugo (SC)	1989	4	7,000,000,000
3	Floyd (Mid Atlantic & NE U.S.)	1999	2	4,500,000,000
4	Fran (NC)	1996	3	3,200,000,000
5	Opal (NW FL, AL)	1995	3	3,000,000,000
6	Georges (FL Keys, MS, AL)	1998	2	2,310,000,000
7	Frederic (AL, MS)	1979	3	2,300,000,000
8	Agnes (FL, NE U.S.)	1972	1	2,100,000,000
9	Alicia (N TX)	1983	3	2,000,000,000
10	Bob (NC, NE U.S.)	1991	2	1,500,000,000
11	Juan (LA)	1985	1	1,500,000,000
12	Camille (MS, SE LA, VA)	1969	5	1,420,700,000
13	Betsy (SE FL, SE LA)	1965	3	1,420,500,000
14	Elena (MS, AL, NW FL)	1985	3	1,250,000,000
15	Gloria (Eastern U.S.)	1985	3	900,000,000
16	Diane (NE U.S.)	1955	1	831,700,000
17	Bonnie (NC, VA)	1998	2	720,000,000
18	Erin (NW FL)	1995	2	700,000,000
19	Allison (N TX)	1989	TS	500,000,000
19	Alberto (NW FL, GA, AL)	1994	TS	500,000,000
19	Frances (TX)	1998	TS	500,000,000
22	Eloisa (NW FL)	1975	3	490,000,000
23	Carol (NE U.S.)	1954	3	461,000,000
24	Celia (S TX)	1970	3	453,000,000
25	Carla (N & Central TX)	1961	4	408,000,000
26	Claudette (N TX)	1979	TS	400,000,000
26	Gordon (S & Central FL, NC)	1994	TS	400,000,000
28	Donna (FL, Eastern U.S.)	1960	4	387,000,000
29	David (FL, Eastern U.S.)	1979	2	320,000,000
30	Unnamed (New England)	1938	3	306,000,000

Note. TS = Tropical Storm. Adapted from “The deadliest, costliest, and most intense United States hurricanes from 1900 to 2000 (and other frequently requested hurricane facts),” by Jarrell, et al., 2001, In *NOAA Technical Memorandum NWS TPC-1*, Table 3.

Past Warnings and Preparation

Hurricane Mitch was a category 5 hurricane that would suggest massive destruction. When the deadliest hurricane, the storm of 1900 (‘Isaac’s’ storm) landed in

Galveston, Texas, unannounced, the human death toll reached at least 8,000 with as many as 12,000 possible deaths (Jarrell et al., 2001). By comparison, the death toll left in the wake of Hurricane Mitch was roughly similar to the storm of 1900, where between 9,000 and 14,000 people were killed in Central America. This would give Hurricane Mitch a number one ranking on Table 5. However Hurricane Mitch occurred ninety-eight years later, when more sophisticated predication models and advanced warning systems were

Table 7

The Thirty Costliest Mainland United States Tropical Cyclones, 1900-2000; Ranked Using 2000 Inflation, Population and Wealth Normalization in Dollars

Rank	Hurricane	Year	Category	Damage
1	SE FL/AL	1926	4	87,167,000,000
2	ANDREW (SE FL/SE LA)	1992	4	39,896,000,000
3	N TX (Galveston)	1900	4	32,090,000,000
4	N TX (Galveston)	1915	4	27,190,000,000
5	SW FL	1944	3	20,331,000,000
6	New England	1938	3	20,046,000,000
7	SE FL/Lake Okeechobee	1928	4	16,631,000,000
8	BETSY (SE FL/SE LA)	1965	3	14,990,000,000
9	DONNA (FL/Eastern U.S.)	1960	4	14,526,000,000
10	CAMILLE (MS/SE LA/VA)	1969	5	13,219,000,000
11	AGNES (NW FL, NE U.S.)	1972	1	12,904,000,000
12	DIANE (NE U.S.)	1955	1	12,335,000,000
13	HUGO (SC)	1989	4	11,307,000,000
14	CAROL (NE U.S.)	1954	3	10,929,000,000
15	SE FL/LA/AL	1947	4	10,015,000,000
16	CARLA (N & Central TX)	1961	4	8,522,000,000
17	HAZEL (SC/NC)	1954	4	8,486,000,000
18	NE U.S.	1944	3	7,790,000,000
19	SE FL	1945	3	7,611,000,000
20	FREDERIC (AL/MS)	1979	3	7,587,000,000
21	SE FL	1949	3	7,038,000,000
22	S TX	1919	4	6,448,000,000
23	ALICIA (N TX)	1983	3	4,890,000,000
24	FLOYD (NC)	1999	2	4,680,000,000
25	CELIA (S TX)	1970	3	4,024,000,000
26	DORA (NE FL)	1964	2	3,747,000,000
27	FRAN (NC)	1996	3	3,735,000,000
28	OPAL (NW FL/AL)	1995	3	3,617,000,000
29	CLEO (SE FL)	1964	2	2,936,000,000
30	JUAN (LA)	1985	1	2,892,000,000

Note. Adapted from “The deadliest, costliest, and most intense United States hurricanes from 1900 to 2000 (and other frequently requested hurricane facts),” by Jarrell, et al., 2001, In *NOAA Technical Memorandum NWS TPC-1*, Table 3a.

available in the developing countries (Swanson, 2000; United States Agency for International Development, 2001a). Damage to Central America attributed to Hurricane Mitch was estimated at \$5 billion, placing Mitch number 3 in comparison with the unadjusted costliest U.S. hurricanes in Table 6 (U.S. Department of Commerce, 2002). To put this into perspective, the top two costliest U.S. hurricanes (Table 6) were Andrew and Hugo, category 5 and 4 respectively, striking wealthy coastal areas. In comparison, Hurricane Mitch affected communities that live simpler on a per capita basis than even the poorest areas surrounding Andrew and Hugo. Thus, the devastation from Mitch spread much further and touched more lives to accumulate damages of \$5 billion plus the cost of each human life lost. This suggests that the monetary damage from Hurricane Mitch would have been much greater if the people of Central America had the same living standards.

Central America was not prepared for a disaster of this immeasurable magnitude for there was an absence of preventative disaster organizations in Central America (United States Agency for International Development, 1999b; Bendata, 1999). For example, only 37 of the 143 municipalities of Nicaragua had an active civil defense due to budget cuts (Bendata, 1999). As can be seen from Hurricane Mitch, without adequate warning systems and preparedness plans, human and economic destruction in the wake of a natural hazard is costly, both in terms of lives and dollars. Some in the U.S., though, believe that even with forecasting, warning, and observing systems, a large death toll is still possible if a major hurricane strikes a highly vulnerable area (Jarrell et al., 2001).

Regardless of the magnitude of a natural disaster, any community affected by a disaster will be changed in some way. The severity of the destruction that will occur

when another natural hazard strikes an area already affected will be determined by a community's ability to respond. The Central American governments understood Hurricane Mitch was approaching, but without the ability to predict exactly where and when it would hit, least of all the ability to systematically evacuate large numbers of people, they unfortunately were unable to fully protect property or the lives of their citizens. Vulnerability studies had not been systematically completed for Central American countries. For instance, no one would have expected a mudslide in Nicaragua to kill 2,000 people because no vulnerability studies of the area had been undertaken (United States Agency for International Development, 2001a). Thus, the Central American communities were not prepared to handle the natural disaster created by the extreme rainfall and flooding that occurred during and after Hurricane Mitch made landfall.

After a natural disaster strikes, people respond in a way that will better prepare them for the next disaster (Scotti, 2003). Without the constant threat of a hazard, however, complacency arises, as people focus on the day-to-day problems they encounter. It is difficult to draw attention in the U.S. to both short- and long-term preparedness activities needed to cope with natural disasters. As Tierney, Lindell, and Perry (2001) state:

Disasters are portrayed both as societal abnormalities and as discrete events, without reference to the larger societal context. The overall message is that, since disasters are unfortunate if inevitable acts of nature, perhaps the best we can do is cope with them, clean up, provide relief, and go on. Our society has a short

attention span. When the emergency period ends, so does the public's interest – until the cycle resumes with the next disaster. (p. 254)

As an historical example, on the East Coast of the United States, people once knew not to build homes on barrier islands, places remolded by wave action and shoreline action. Over time, complacency set in, as people did not feel a natural disaster would occur. Thus, people built in high impact areas. Then the Great Hurricane of 1938, which skipped along the eastern seaboard, came without warning. It claimed 600 people, washing away mansions, family possessions, and a way of life (Scotti, 2003). Not only did it devastate the New England coast, it wreaked “total destruction on a way of life the world would never see again”; eventually leading to the modernization of the National Weather Service (NWS) (Scotti, 2003).

Just within the past 15 years, the NWS has improved its ability to accurately forecast a hurricane track, from three-days in advance to as many as five-days in advance (U.S. Department of Commerce News, 2003). Advance warning bulletins are broadcast via television, conventional radio, and special NOAA weather radio stations, giving people more time to prepare for the hazard and evacuate the area if necessary.

The Great Hurricane of 1938, the fourth deadliest storm (Table 5) of the twentieth century in the United States, was also the fastest moving hurricane on record, with winds clocked at 186 miles per hour (Jarrell et al., 2001; Scotti, 2003). The impact of the Great Hurricane of 1938 was so strong it even registered on Alaskan seismographs (Scotti, 2003). Today many of the over-washed areas remain devoid of housing because the land was washed away, protected by laws, or has been shown to be vulnerable. As long as

people are prepared and ready to respond to the loss of lives and property witnessed in 1938 should not be repeated in New England.

Organizations like NOAA have begun to respond to natural disasters education programs for vulnerable populations and pre- and post-natural disaster survivors in the U.S. For example, tornado and hurricane education programs have begun in disaster prone areas. As populations begin to change practices through changes of building codes and laws restricting building near the ocean, property damage due to natural hazards will decrease (Jarrell et al., 2001).

As mentioned above, warning systems like those in the U.S. were not in place in Central America when Hurricane Mitch struck (United States Agency for International Development, 1999b). Honduras and Nicaragua had not undergone extensive preplanning, they had not evaluated the environment with respect to hurricane impacts, nor had they identified the possibility of catastrophic landslides and flooding because funding was not available (Bendata, 1999). Hurricane Mitch was a significant natural hazard that nonetheless catapulted into a catastrophic natural disaster because of a human factor: non-preparedness.

No one can change the weather; however technology and experience allows forecasting and mitigation of possible hazards. In the United States, depending on the type of natural hazard, alerts can range from an average warning time of only 18 minutes for a tornado to a 5 day advanced forecast for a hurricane (United States Agency for International Development, 1998a; Williams, 2000). Each time a natural disaster occurs in the U.S., responses to the disasters are analyzed and discussed by the Federal agencies involved in preparation for a future occurrence. This analysis and discussion will be a

report to the Agency leader, the Office of Management and Budget, the President of the U.S., and/or the Congress.

Despite the fact that the Central American governments made an effort to respond to Hurricane Mitch, they recognized they were unable to handle the situation and asked for international assistance as the storm churned overhead, not waiting to see the damage after Hurricane Mitch moved back into the Gulf of Mexico. The lack of proper preparation by many Central American governments was due in part to the lack of economic stability and civil strife that had plagued Central America during the past century causing continual change in governing bodies and a lack of money to prepare adequately for natural disasters (Schulz & Schulz, 1994; Bendata, 1999). Nobody predicted the hurricane, stalled off the coast for several days, would suddenly turn inland. Over the years prior to Mitch, people had re-settled old river and streambeds that had dried up (Joseph Lombardo, personal communication, March 2004). In addition, the length of the storm, the amount of rain, and the lack of land use management in many areas set the stage for a larger disaster (United States Agency for International Development, 2003e). Efforts immediately following the storm to rescue stranded victims and clear debris to open roads was compromised because rescue equipment, such as helicopters and bulldozers, was either non-existent or destroyed by Hurricane Mitch itself suggesting a need for enhanced preparedness before the next natural disaster (United States Agency for International Development, 2003e).

In the case of the Great Hurricane of 1938, immediately following the storm, the District of Columbia's (D.C.) Weather Bureau (now NWS) was 'flooded' with letters (some angry, some questioning), as well as, numerous reporters looking for answers to

why the Hurricane of 1938 had not been forecasted properly, allowing the affected populations to be warned. The claim was made that the U.S. Government had not protected its' citizens and commerce. If advance warning had been given, it might have reached enough by radio, press, and community notification to avert a major loss of life. One letter stated: "the whole virtue of good forecasting is not merely to predict the obvious but to predict the exceptional" (Scotti, 2003, p. 215). Another letter concluded,

Perhaps the most amazing aspect of the whole affair is that the official forecaster who made this seemingly inexcusable error of judgment is beyond all doubts the best forecaster at the Washington forecast center, if not the best in the entire Weather Bureau. How can his disastrous failure to make a timely and correct diagnosis be accounted for? (Scotti, 2003, p. 216)

The people of Central America were attempting to locate family members and survive, thus a similar outcry about the lack of warning during Hurricane Mitch was not immediately voiced by the locals. Unlike the expectations of the citizens of the United States to be protected, the years of civil strife in Central America left the population with lower expectations. The outcry from the rest of the world was humanitarian. The people of the global community, most of who were not on the ground in Central America, learned about events through the eyes of the reporters and news accounts from the region. With the amount of infrastructure destruction, these reports could only be based on immediate, accessible, and localized observations, thus not depicting the entire scene.

In the wake of the Hurricane of 1938, numerous questions had to be asked. This questioning created immediate internal change in the U. S. Weather Bureau.

While publicly the Weather Bureau insisted it was blameless, behind the scenes a major shake-up was under way. In an effort ‘to greatly strengthen’ the agency, F. W. Reichelderfer, a navy commander with a take-no-prisoners attitude, was appointed chief. Carl G. A. Rossby, a noted meteorologist at MIT [Massachusetts Institute of Technology], was brought in as assistant chief, a new position, and given a mandate to develop a research and training program. Charles Pierce, the only forecaster to recognize the danger, received a promotion and was moved to the analysis division. He remained with the Weather Bureau (now the National Weather Service) for the rest of his career. (Scotti, 2003, p. 215)

Even sixty-five years later as a result of the 1938 storm, the NWS still finds itself defending accusations and the missed forecast. “But no matter which side you come down on, the shortest and truest answer is that the Great New England Hurricane simply outran the forecasters. It was too fast for the men in the Weather Bureau and the limited resources they had in 1938” (Scotti, 2003, p. 216).

In the case of Hurricane Mitch, a number of questions remain unanswered, such as why the Central American governments were not prepared to predict this disaster. There was an outcry by some locals, like Alejandro Bendata from the Center for International Studies, Managua, Nicaragua (1999). He discussed “the criminality implicit in the absence of preventive organizations” (Bendata, 1999, p. 1) “as in Nicaragua 54 of the 143 municipalities are classified as highly vulnerable to flooding, but due to budget cuts only 37 of those 54 had an active civil defense set up” (Bendata, 1999, p. 2). “There was ample warning from the weather service and civil defense about the possible consequences of Mitch – yet less than eighty miles from Managua [the capital of

Nicaragua], entire villages and families were buried alive” (Bendata, 1999, p. 1). These warnings were ignored, as the central government thought the weather information held no serious national implication, as it was only a localized phenomenon (Bendata, 1999). But even without a documented similar outcry, though, the United States reconstruction efforts began to address this lack of advanced warning and preparedness through the NOAA National Weather Service’s expertise in assisting the affected countries in the modernization of their individual weather forecasting abilities.

The reasons for and results of both storms can be summed up with the story written about the storm of 1938, for this same story could easily be applied to Hurricane Mitch. To create the comparison, change September 21, 1938 to October 26, 1998 and compare Central America’s civil strife to the impact of the Great Depression in the U.S. just prior to 1938. Scotti states:

The human and economic toll was measurable. The deepest impact of the hurricane was not. The swiftness and totality of the disaster were so stunning as to defy reason, logic, credulity. Social change evolves. Dunes and beaches and shorelines are shaped over a century of wind and wave. Lives and landscape require years of patient building, grain upon grain. They cannot be redrawn in two or three hours. On September 21, 1938, what couldn’t happen did, and even for those who had been cushioned from the ravages of the Depression, life seemed suddenly fragile. (2003, p. 231)

The Hurricane of 1938 and Hurricane Mitch ravaged both rich and poor, thus solidifying the need for change due to the scope of the disaster. Regardless of status, no one either in the United States in 1938 or the world in 1998 expected such an utter loss of

life and infrastructure. Regardless of status, those who heard about and saw the destruction caused by these two hurricanes called for change based on their need to feel safe. They felt unprotected and thus moved to improve the system.

In the past century, transportation and communication technologies have enabled increased communication and mobility throughout the world. Thus knowledge and technology needed to mitigate future disasters in Central America can be readily transferred to vulnerable populations in affected countries. International meetings for different specialties create a forum for information exchange. Furthermore, numerous non-profit organizations work worldwide to disseminate information and increase a population's knowledge of how to respond to disasters.

Development Relief and Reconstruction

Immediately following an international natural disaster, the local area or country can request national or international assistance through different avenues depending on the laws of the nation and the laws and governing principles of other countries and organizations. The U.S. international disaster declaration and release of funds is governed by the Disaster Assistance Authority. Disaster relief assistance serves to meet the victims' immediate needs for food and shelter. Following any disaster, Mr. Ricardo Zapata-Marti of Mexico discussed methodological approaches of the Economic Commission for Latin America and the Caribbean states which include three basic phases: emergency phase, rehabilitation or transition phase, and reconstruction phase. These phases will occur following every disaster irrespective of international aid.

The emergency phase is short-term, relating to the period in the immediate aftermath of a disaster when actions are still being undertaken to save lives. This

phase also includes the provisional restoration of some public services, such as transportation or communication links, and the emergency repair of essential utilities. The rehabilitation or transition phase is medium-term in duration, lasting some six to twenty-four months and comprising the period required to restore normal activities in affected areas, communities and economic sectors. The reconstruction phase is longer-term, relating to the period required to restore physical infrastructure... (Zapata-Marti, n.d.)

USAID states development relief can be seen as a way to link emergency humanitarian (disaster) relief and long-term development assistance, thus closing the gap between relief and development work (United States Agency for International Development, 2001b, p. 10). InterAction, a coalition of 165 U.S.-based non-profit organizations involved in relief, development, environment, and refugee issues around the world, that partner with and implement many of USAID/Office of U.S. Foreign Disaster Assistance's (OFDA) emergency response programs incorporate USAID's concept of development relief into their own activities.

Thus developmental relief to this coalition is "the implementation of relief activities that address immediate needs, and contribute to sustainable development and peace" (United States Agency for International Development, 2001b). Developmental relief activities include "emergency programs that also strengthen local participation, capacity, and civil society, facilitate economic and agricultural revitalization, and encourage peace building and reconciliation" (United States Agency for International Development, 2001b, p. 13).

In international work and reconstruction efforts, it seems there are no technological shortcuts to rebuilding a country. In cases where people have been given cutting edge technology, and nothing more, it has generally not resulted in a meaningful strengthening of the country's institutional ability to sustain the sorts of financial investments that ultimately decide whether a true reconstruction will be successful (United States Agency for International Development, 2003e, p. 15). Partners working with USAID in reconstruction efforts have found they need to gear programs to the farmers' planting periods (12-18 months) for the best response and use of resources. Ultimately USAID believes reconstruction programs are essentially like a 'short-term development program,' as both have a similar objective, sustainable growth of the developing country (United States Agency for International Development, 2003e, p. 15). Sustainable growth of a country is a means to decrease impacts of future disasters.

Overview of Hurricane Mitch

Hurricane Mitch began as a tropical depression on October 21, 1998 in the southern Caribbean Sea (Table 8). The next day, upon becoming a tropical storm, 'Mitch' was "born" (Figure 2). Mitch gathered strength as it slowly drifted northwest. On October 24, Hurricane Mitch was increasing in strength to 90 knots and was about 255 nautical miles south-southwest of Kingston, Jamaica. Mitch officially became a category 5 hurricane on October 26, 1998, with winds of 155 knots. At the height of the storm, winds were 157 knots (180 mph) and maintained this intensity for nearly 24 hours. By these metrics, Mitch was the strongest hurricane the Caribbean Sea had experienced in over a decade, creating extensive destruction and loss of life as it moved slowly and gathered strength (Table 1 and 9) (National Oceanic and Atmospheric Administration's

National Environmental Satellite, n.d.). Hurricane Mitch churned off the Central American coast on October 27 and 28 before making landfall in Honduras on the 29th. Throughout October 31-November 2, Mitch churned over portions of Central America and Mexico dropping great amounts of rain. In some areas of Nicaragua and Honduras, up to 35 inches of rain were recorded in one week (Table 10) (Guiney & Lawrence, 1999).

Table 8

Overview of the Location, Category and Wind Speed (Knots) of Hurricane Mitch from October 21-November 5, 1998.

Date	Location	Category	Wind Speed (knots)
October 21	S. Caribbean Sea	Tropical depression	30-35
October 22	Drifted NW	Tropical storm – named “Mitch”	30-35
October 24	~255 nautical miles; S-SW of Kingston, Jamaica	1	55-90
October 27-28	Churning off Northern coast of Honduras	4-2	155-95
October 29	Landfall in Honduras	1	85-60
October 31-November 2	Churned over portions of Central America & Eastern Mexico	Tropical storm/tropical depression	45-20
November 3-4	Moving across Mexico & S. Central Gulf of Mexico	Tropical low/Tropical storm	20-40
November 5	Landfall in Florida & moved offshore of SE Florida	Tropical storm	45-55

Track of Hurricane Mitch

From October 26 to November 1, 1998

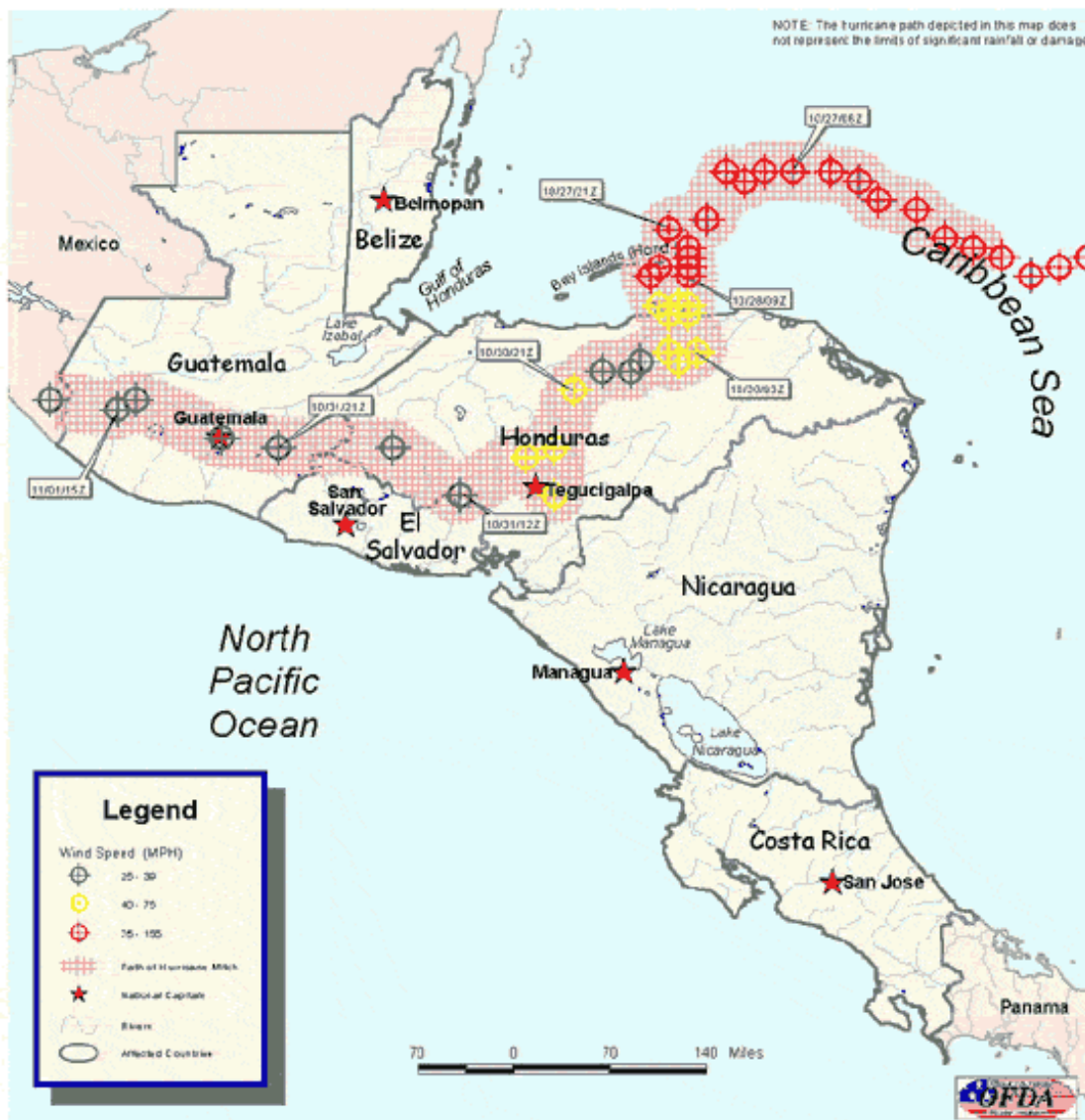


Figure 2. Track of Hurricane Mitch from October 26-November 1, 1998 Illustrating Wind Speed in Each Country Affected by Hurricane Mitch.

Note: Adapted from "USGS Hurricane Mitch Program Hurricane Overview," by USGS, 2004, In <http://mitchnts1.cr.usgs.gov/overview.html>.

Table 9

Effects of Hurricane Mitch on the Population of Central America

	People Killed	Missing	Affected population	Houses destroyed /damaged
Honduras	7,000	8,052	1,393,669	70,000
Nicaragua	1,849	1,287	800,000	24,975
Guatemala	258	120	105,000	19,093
El Salvador	239	235	67,300	10,000
Total	9,346	9,694	2,365,969	124,068

Note. Adapted from “Hurricane Mitch, situation report,” by OCHA, 1998, In <http://www.disastercenter.com/hurricm.htm>.

Table 10

Selected Rainfall Totals in Honduras During Hurricane Mitch, October 25-31, 1998.

Location	Rainfall Total (in)	Maximum 1-Day Total	Date
Choluteca	35.89	18.37	10/31
La Ceiba	34.52	11.19	10/27
Balfate	26.43	10.24	10/26
Tela	22.26	6.73	10/28
Yoro	20.49	9.28	10/28
Orica	17.89	4.35	10/30
Santa Lucia	15.18	5.48	10/30
Sabana Grande	14.53	7.33	10/30
Lepaguare	13.19	3.55	10/26
Amapala	12.38	10.24	10/31
Colonia 21 De Octubre	11.85	6.31	10/31
Santa Barbara	11.81	3.96	10/30
Unah (Tegucigalpa)	11.58	5.09	10/30
Moroceli	10.65	7.48	10/31
Roatan	10.65	3.68	10/27
La Mesa	10.55	5.87	10/28
Catacamas	10.13	3.95	10/30
Gracias	10.05	3.23	10/25

Note. Adapted from “Preliminary report: Hurricane Mitch 22-October – 05 November 1998, by Guiney, John L. and Lawrence, Miles B (National Oceanic and Atmospheric Administration's National Weather Service's Tropical Prediction Center), 1999, In <http://www.nhc.noaa.gov/1998mitch.htm>, p. 9.

Other locations recorded accumulation of more than six feet of rain as the Honduran and Nicaraguan highlands and mountainous regions squeezed the moisture from the system

(United States Agency for International Development, 2003e). This created massive flooding and entire villages were either engulfed or completely obliterated.

Finally on November 4, 1998, Mitch's circulation center moved into the Gulf of Mexico. Upon entering the Gulf, Mitch encountered a cold front, which aided in increasing the storm's forward speed and intensity. On November 4, Mitch became a tropical storm again as the speed of the winds increased, although the center was losing its tight composition and the storm was losing its tropical characteristics.

Clearing Florida with winds gusting to almost 70 knots later on November 5, Mitch moved into the Atlantic where Mitch was determined to no longer have tropical characteristics and was classified as 'extratropical' (National Oceanic and Atmospheric Administration's National Environmental Satellite, n.d; Guiney & Lawrence, 1999).

This was among the most powerful and severe storms to hit Central America. It was classified as "one of the deadliest Atlantic tropical cyclones in history, ranking only below the 1780 'Great Hurricane' in the Lesser Antilles, and comparable to the Galveston hurricane of 1900, and Hurricane Fifi of 1974, which primarily affected Honduras" (Guiney & Lawrence, 1999, p. 1).

Hurricane Mitch caused unprecedented human and property damage (Table 9). The exact death toll may never be known. Estimates range from more than 9,000 people killed in Central America to over 14,000 lives lost or missing in Honduras alone (Swanson, 2000; United States Agency for International Development, 2001a, p. 2). *Bangor Daily News* stated, "...perhaps more haunting is that 4 years later, nearly 8,000 Hondurans are still missing" (Katz, 2002, p. 1). Estimates also suggest 13,000 persons were injured and at least 3 million were displaced as a result of Hurricane Mitch (United

States Agency for International Development, 2001a). As each organization conducted their surveys, no matter how efficient, it was extremely difficult to quickly assess the destruction, devastation, and loss-of-life because infrastructure had been destroyed and people were displaced. Thus, as in other major disasters, commonly agreed upon estimates of death, injury, and damage remains difficult to obtain because each organization has a different experience and uses their count as accurate.

In one single, tragic mudslide in Posoltega, Nicaragua, 2,000 people perished. Hundreds of bridges, thousands of schools, clinics and [numerous] kilometers of roadway were destroyed or damaged. There were also severe losses to agricultur[sic] products such as rice, corn, beans, coffee and banana crops; the basic economic mainstay of thousands of poor farmers and consumers. Direct and indirect damages from the storm were estimated at more than \$8.5 billion in Honduras, Nicaragua, Guatemala and El Salvador, with \$3.4 billion in Honduras alone. (United States Agency for International Development, 2001a, p. 2)

The data in Table 9 lists composite numbers for an estimate of the people killed and missing, as well as, the people affected and the houses destroyed or damaged (OCHA, 1998).

Following the storm, personnel from USAID's OFDA were providing on-the-ground damage assessments. Relief attempts began as the storm churned overhead, and the U.S. military sent 5,000 troops into the stricken region. The U.S. military was to reconnect roadways, repair bridges and schools, and assist in dispensing food and medical supplies. "USAID, the U.S. Department of Agriculture, the U.S. military and others [relief agencies] provided over \$300 million in critical assistance in the space of a

few months. Water, food, medicines, shelter, blankets and supplies were delivered to millions of victims of the storms' wrath" (United States Agency for International Development, 2001a, p. 2). The relief effort was strengthened by the assistance of numerous other countries and international organizations including the European Union, Canada, Taiwan, Japan, Mexico, Great Britain, France, Canadian Central America Relief effort, Red Cross, Doctors Without Borders, Medical, Eye and Dental International Care Organization, Food for the Hungry, Oxfam America, World Wildlife Fund, American Refugee Committee, Catholic Relief Services, Baptist World Aid, Church World Services, Heart to Heart International, Lutheran World Relief, and United Way International.

In Central America at this time, democratic governance was still evolving. The aftermath of Mitch threatened to unravel 15 years of the United States's efforts and billions of dollars pledged to bring peace to the region. With budding political systems in these underdeveloped countries, the governments are less stable (Office of Technology Assessment, 1980). Thus, to keep progress toward a democratic governance in these countries, USAID attempted to nurture democratic governance, reduce poverty, and stimulate economic growth by completing 89 percent of the reconstruction efforts within thirty months (May 1999 – December 2001). Of the remaining funds, most were spent by September 30, 2002, to finish the projects begun earlier. The rest of the unspent balance completed "a complicated Honduran urban water and sanitation program" (United States Agency for International Development, 2003e, p. 8).

Policies And Processes

Laws and Policies: International Natural Disasters

A literature review was undertaken to document the current laws and policies associated with U.S. government funding of international natural disasters. This section gives the background for why, how, who, and through what vehicles U.S. money can be spent internationally.

U.S. Government Interest in Declaring International Natural Disasters

The U.S. Government's interest in declaring and appropriating assistance following an international natural disaster is typically humanitarian and U.S. commerce related (U.S. economic growth), with the intent to further democratic governments while stabilizing populations, and/or to protect the environment (United States Agency for International Development, 2003b; United States Agency for International Development, 2003c). Thus, the U.S. policies primarily focuses upon protecting U.S. commerce related interests, U.S. interests abroad, U.S. markets, and U.S. businesses. As an example, an entire banana crop could have been destroyed in Honduras. The crops could have been owned by U.S. citizens. Not only could this destruction have left many locals jobless, but it could also have left a major U.S. industry in turmoil. Bananas could be in demand and prices then could sky rocket, affecting the U.S. consumer. On the other side, wholesalers could find other banana suppliers, thus when this banana crop is producing again, the U.S. producer's market share could be gone. Without a major export of bananas, the country involved may not be able to import massive quantities of apples from the U.S., thus sending a shockwave through the U.S. apple industry. U.S. workers could be laid-off. Apples could rot in the orchards. This is only one example of a possible economic

cycle. The cause and effect of this possible cycle could pose a disaster on its own for U.S. economic growth. Thus it is in the U.S.'s best economic interest to not only analyze issues related to American workers, but also encourage stability of other governments to reduce associated economic multipliers catalyzed by instability.

To strategically obtain the U.S.'s long-term domestic and foreign policy objectives, the U.S. foreign policy believes the community of democratic nations worldwide must be enlarged. This can be accomplished by establishing sustainable democracies, which encourage pluralism, participation, and peaceful conflict resolution. These democracies need established institutions with free and open markets, an informed and educated populace, a vibrant civil society, and a relationship between state and society (United States Agency for International Development, 2003a).

After Mitch, USAID identified the reconstruction of Central America was needed as a way to stabilize the region and keep it democratic. For “in underdeveloped countries, the domestic political systems seem less stable than in the industrialized countries, thus raising attention to political considerations in a disaster” (Office of Technology Assessment, 1980, p. 11). The function of disaster relief can also be influenced by “ethnic, religious, and racial attitudes and rivalries” (Office of Technology Assessment, 1980, p. 11). Numerous types of assistance were provided, such as: debt relief, funds for immediate relief, reconstruction, and/or sharing of expertise to help prevent ‘the next time’ (United States Agency for International Development, 2003c).

Prior to Hurricane Mitch, most the countries of Central America had been engaged in civil strife since 1838. As an example, Table 11 documents the political events occurring in Honduras since 1838 (Agency for International Development, 1979;

Rosenberg, 1986; Merrill, 1993; Euraque, 1996; honduras.com, 2003). As can be seen, a number of the events were either conflicts with other Central America countries or coups within the country. The economic and political turmoil caused by Mitch could have sent Central America spiraling back into a continual changing of power. Stabilization was needed to keep large numbers of refugees from looking for work and competing with locals in neighboring countries, including the U.S. Thus jobs were created and the local populations were organized in Central America to rebuild their own countries, instilling a sense of pride and purpose (United States Agency for International Development, 2003e).

Table 11

Political Events Occurring in Honduras Since 1838 (Agency for International Development, 1979; Rosenberg, 1986; Merrill, 1993; Euraque, 1996; honduras.com, 2003).

Date	Political Historical Events in Honduras
Nov. 15, 1838	<ul style="list-style-type: none"> - Federation dissolved due to constant political rivalry & fighting - Previous Spanish rule had helped to foster divisions & local suspicions among 5 provinces - Honduras becomes a sovereign state
1839	Independent constitution formally adopted
1839-40	Interim President Francisco Zelaya Ayes
1841-42	<ul style="list-style-type: none"> - First elected President – Conservative - General Ferrera continued control for 5 more years
1847-52	<ul style="list-style-type: none"> - Conservative Juan Lindo Zelaya elected President - Attempted to promote education
1848	New constitution adopted
1840s-90s	<ul style="list-style-type: none"> - Honduras considered differing political parties on its' border a potential treat - Exiled Honduras opposition leaders launched coups from neighboring countries
1849	<ul style="list-style-type: none"> - Pressure to pay Britain the debts and claims due - British naval forces destroyed property & collected 1,200 pesos from local government at Port of Trujillo
1850	<ul style="list-style-type: none"> - Vice President revolted - Military of Nicaragua and El Salvador intervened
1852	<ul style="list-style-type: none"> - Lindo refused another presidential term - Opposition party – Liberal Trinidad Cabaña came to power

Table 11 (continued).

1855	<ul style="list-style-type: none"> - Conservative Government of Guatemala invaded; ousted Cabañas; installed Santos Guardiola (conservative) - William Walker, American soldier of fortune, established himself as President of Nicaragua - Positive: All Central Americans joined to oppose Walker
1857	Walker abandoned Nicaragua & went back to U.S.
1859	Islas de la Bahía came under Honduran sovereignty with Honduran/British treaty
1860	<ul style="list-style-type: none"> - Walker returns to Honduran coast at request of some British settlers - Walker found determined opposition from both Honduras & British - Walker surrendered to British and was transferred to Honduran authorities - Few days later, he died in front of Honduran firing squad
1862	Guardiola assassinated by own honor guard
1862-76	- Presidency changed hands almost 20 times of which General José María Medina was president or dictator 11 times
1876	Guatemala intervened, drove General Medina & conservatives out of power
1876-82	<ul style="list-style-type: none"> - Liberal President Marco Aurelio Soto governed with support of Guatemalan General Justo Rufino Barrios - Soto restored order - Implemented basic reforms in finance, education, and public administration
1883	<ul style="list-style-type: none"> - Resigned when fell into disfavor with Barrios - Manipulated election ensued - Liberal General Poinciana Leiva returned to power
1883-91	General Leiva ruled as absolute dictator dissolving Liberal Party of Honduras and deporting its leaders
1894	<ul style="list-style-type: none"> - Liberal Policarpo Bonilla, assumed power with support - Restored limited degree of order to political scene
1895	<ul style="list-style-type: none"> - Another constitution promulgated - Bonilla elected 4 year term - Administration revised civil codes, improved communication and began effort to resolve long-standing boundary dispute with Nicaragua
1899	<ul style="list-style-type: none"> - Peaceful transfer of Presidential power - Attract attention of U.S. Government (concern over Honduras's political instability) - U.S. periodically sent warships into Honduran waters as a reminder that its business interests were threatened or domestic conflict escalated, U.S. may intervene - Bonilla succeeded by his military commander General Terencio Sierra
1920-23	17 uprisings or attempted coups
1925-31	U.S. urged Honduras to honor constitutional provisions & international agreements, thus more stable Governments in power.

Table 11 (continued).

1932-54	<ul style="list-style-type: none"> - Successive rule by 2 dictators: Tiburcio Carías Andino Juan Manuel Gálvez - Period of relative political calm - Limited road building - Develop coffee as export crop - Increase priority to education
1954	<ul style="list-style-type: none"> - Bilateral military assistance agreement with U.S. - Station temporary U.S. military presence in Honduras
1956-58	Return to instability
1956	<ul style="list-style-type: none"> - Coup, 1st time armed forces acted as institution - Following decades, military act as final arbiter of Honduran politics
1957	<ul style="list-style-type: none"> - Election scheduled for civilian government - Reformer Ramón Villeda Morales winning - Morales called Honduras “the land of the 70s; 70% of our people are illiterate, 70% are illegitimate, and 70% are living in rural poverty
Oct. 1963	<ul style="list-style-type: none"> - When appeared another reformer might win, military seized power & installed General Oswaldo López Arrellano - 136th revolution since independence (142 years earlier) - Growing economic problems
June 1965	16 th different constitution in effect since 1821
1969	<ul style="list-style-type: none"> - 6 day soccer war with El Salvador over border dispute - Pressure building for civilian government
1971	<ul style="list-style-type: none"> - Civilian election held - 19 months later – military overthrew Government
1978	<ul style="list-style-type: none"> - Military losing control - Coup replaced military President with 3 man junta - Junta – drafted new Constitution and held elections
1982	<ul style="list-style-type: none"> - January – civilian President inaugurated - National Congress (unicameral legislature) was established - President & Congress have 4 year terms
1980s	<ul style="list-style-type: none"> - Continued underdevelopment created a crises of confidence in society - Citizens sense of vulnerability because worldwide economic crisis, a sharp rise in crime, and the absence of an independent police force and judicial system - Dependent on external assistance, with U.S. assistance substitute for undertaking economic reforms
1982-86	Elected Roberto Suazo Córdova
1982	<ul style="list-style-type: none"> - Current Constitution, effective 20 January 1982 - Annex to 1954 bilateral military assistance agreement
1983	Pamerola Air Base housed 1,100 U.S. troops ~ 80 km from Tegucigalpa
1986-90	Elected José Azcona Hoyo

Table 11 (continued).

1987	U.S. approved sale of 12 advanced F-5 fighter aircraft to Honduras (Air superiority in Central America)
1990-94	Elected Rafael Leonardo Callejas
All three Pres Suazo, Azcona, & Leonardo	- Had difficult task of: Consolidating democracy, appeasing military, and spurring economic development amidst insurgencies in ALL Honduras's neighbors - U.S. aid & presence – received strong criticism Honduran nationalists & many other society segments
Early 1990s	Honduran government distanced itself from U.S., partially over issue of intellectual property rights with the U.S.
1994	- Low voter turnout (lack of enthusiasm for either candidate) - Elected Carlos Roberto Reina (Liberal Party of Honduras)
1995	1982 Constitution amended
Nov. 25, 2001	Election
Jan. 27, 2002	President Ricardo (Joest) Maduro (chief of state and head of government)

As Mr. Frank Almaguer, U.S. Ambassador to Honduras, stated:

Hondurans buy American products. We invest here. We want to secure a democratic hemisphere with prosperity and stability. ... Honduras has solid democratic processes. ...there is no sign of insurgency in the country. If the country had not dealt with this disaster appropriately, this would have given way to insurgencies. It is a very tranquil place. (United States Agency for International Development, 1999a)

Thus the U.S. Government's interest in furthering democratic governments while stabilizing democracy was occurring.

Human societies and natural environments are inseparably interactive, revealing the U.S. Government's interest in protecting the environment. Previous environmental mismanagement, could set the stage for massive flooding, landslides, loss of agricultural land, and erosion that washes away the local communities, escalating a natural hazard into an uncontrollable disaster. This occurred in Posoltega, Nicaragua when the people

were buried in a mudslide. The villagers had used the surrounding timber for firewood to survive, so when the rains from Hurricane Mitch came there was nothing to hold the soil in place (Bendata, 1999). The area was devoid of vegetation that can hold the soil in place and absorb water with the root systems. With the lack of vegetation, the soil quickly loosened and with nothing to absorb excess rain, the hillsides became mudslides as people, possessions, and the soil careened downward. Thus, USAID emphasizes the environment in development work as populations worldwide are increasing and placing more pressure on the natural resources, many of which are non-renewable (United States Agency for International Development, 2003c).

Finally, the literature suggests that recipient countries government policies often have a voice in aid related final decisions. The amount of money a country receives could be based on the destruction catalyzed by the disaster. It could also be based on the amount of assistance the U.S. has given to that country/region in the past. Political factors often affect the type of short-term and long-term aid provided by other countries and organizations, as well as the equity or lack thereof in relief and reconstruction (Office of Technology Assessment, 1980).

History and Mission of USAID

USAID was created by President John F. Kennedy in 1961 by executive order after he signed the Foreign Assistance Act into law. Previous international aid was provided after WWII with reconstruction of Europe through the Marshall Plan and then the Truman Administration's Point Four Program (United States Agency for International Development, 2003d).

USAID's mission, the reporting structure, and the organization of the Agency based on the level of satisfaction of the American people with foreign assistance has changed and evolved (United States Agency for International Development, 2003b).

In general "USAID has been the principal U.S. agency to extend assistance to countries recovering from disaster, trying to escape poverty, and engaging in democratic reforms. USAID is an independent federal government agency that receives overall foreign policy guidance from the Secretary of State" (United States Agency for International Development, 2003d).

The two purposes of U.S. foreign assistance has always been "furthering America's foreign policy interests in expanding democracy and free markets while improving the lives of the citizens of the developing world" (United States Agency for International Development, 2003d).

Today, USAID's work "supports long-term and equitable economic growth and advances U.S. foreign policy objectives by supporting: economic growth, agriculture and trade; global health; and, democracy, conflict prevention and humanitarian assistance" (United States Agency for International Development, 2003d). These goals are achieved by "spending less than one-half of 1 percent of the federal budget" (United States Agency for International Development, 2003d).

History and Mission of NOAA

The mission of NOAA is "to understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet our Nation's economic, social, and environmental needs" (National Oceanic and Atmospheric Administration's Strategic Planning Office, 2003).

NOAA was created in 1971 following the Straton Commission report. Existing parts of other agencies came together and new offices were formed. The agencies included:

the United States Coast and Geodetic Survey formed in 1807, the Weather Bureau formed in 1870, and the Bureau of Commercial Fisheries formed in 1871.

Individually these organizations were America's first physical science agency, America's first agency dedicated specifically to the atmospheric sciences, and

America's first conservation agency. Much of America's scientific heritage resides in these agencies. They brought their cultures of scientific accuracy and precision, stewardship of resources, and protection of life and property to the

newly formed agency. (National Oceanic and Atmospheric Administration, 2004)

Since that time, NOAA has been augmented by creation and deletion of offices by both the Executive and Legislative branches. NOAA does not have any overarching authorization bill as USAID does. Therefore the yearly appropriations bill functions as the authorization for those parts of NOAA without authorization. Since NOAA's inception, it has been an integral part in the U.S. government's disaster relief program (National Oceanic and Atmospheric Administration, 2001; Office of Technology Assessment, 1980).

The Theory of International Aid

There is no, one, overall theory for international aid. There are numerous organizations working internationally. Aid can be based on humanitarian good will, politics, commerce, the environment, and/or furthering an organization's mission. Many organizations working internationally have different purposes and missions. Purposes

and missions can range from: response to refugee situations, natural disasters, or other events; assistance in rebuilding efforts; or giving a country's people the tools needed to reduce poverty. The list of international organizations is long and diverse.

There is also not one policy dealing with the federal governments funding frameworks and international aid. Laws, policies, and executive orders are created as needed by Congress and the President.

Emergency Disaster Process

International Disaster Declaration

When a natural disaster affects a country, the Chief of the U.S. Mission can declare it a disaster “when it is beyond the ability of the host country’s response capacity and when he or she determines that a disaster exists that warrants a USG [United States Government] response” (United States Agency for International Development, 2002, p. 25). If the affected country does not have a U.S. Mission, the disaster may be declared by the appropriate U.S. Assistant Secretary of State. “Since April 1, 2002, a disaster declaration provides for the Chief of the U.S. Mission or U.S. Assistant Secretary of State to access up to \$50,000 (the ‘Disaster Assistance Authority’) for host country relief efforts” (United States Agency for International Development, 2002, p. 25).

When the disaster is declared, the USAID/OFDA releases up to \$50,000 from its International Disaster Assistance (IDA) account using the Ambassador’s Authority. USAID/OFDA provides guidance to the U.S. mission in determining the need for additional assistance from the U.S. Government. If the U.S. Mission needs assistance in verifying relief needs, the USAID/OFDA assessment teams will assist (United States Agency for International Development, 2002).

Emergency Supplemental Funding and the Consequences

Funding for an initiative cannot be considered an emergency if the initiative could go through the normal budget formulation process. If new activities, such as those associated with Hurricane Mitch, were to go through the normal process, not only would it take at least two and one-half years, but the projects would also be competing budgetarily with current projects and other new initiatives. Each year, the thirteen appropriation bills are subject to the Congressional Budget Act that creates Congressionally agreed upon Government-wide budget totals to be used in allocating resources within each appropriation bill in that fiscal year. 2 U.S.C § 632 (a). (Jensen, 2002).

A budget resolution (act) is a concurrent resolution by both the United States Senate and House of Representatives “including a breakdown of estimated outlays by budget function. 2 U.S.C. § 632 (a)” (Jensen, 2002, p. 8). “The budget resolution is the annual framework that Congress uses to set targets for total spending, total revenues, and the deficit, as well as allocations, within the spending targets, for discretionary and mandatory spending” (Office of Management and Budget, 2003, p. 17). The Executive branch is not held to the budget resolution because the resolution does not become law. The amount of money set forth in the budget resolution is that amount that can be spent on each of the 13 appropriation spending bills. The resolution can be as specific as detailing budget amounts for sections of each bill.

When discussing emergency supplemental spending bills, though, no limitations exist on the amount or type of spending that can occur. The spending caps set in the budget resolution do not control emergency spending. “Under the Budget Act and the

Deficit Control Act, the emergency designation occurs if both the President and the Congress agree to apply it” (Kremer & Kowalski, 2002, p. 1). Without a statutory definition of an emergency the understanding is that “emergencies are: 1) sudden, urgent, unforeseen, and temporary; *and* 2) events posing a threat to life, property, or national security” (Kremer & Kowalski, 2002, p. 1). When an emergency designation is triggered and an emergency supplemental bill is passed, “an equivalent increase in the appropriate levels of the budget resolution and the statutory spending caps” (Kremer & Kowalski, 2002, p. 1) is made.

When an emergency supplemental bill is enacted, some of the costs can be offset with rescissions, but typically the rescissions are not necessary because of the increased statutory spending caps. A rescission “involves the cancellation of budget authority previously provided by Congress, and can be accomplished only through legislation. 2 U.S.C. §§ 682 (3), 683, 688” (Jensen, 2002, p. 11). Rescissions can be seen as good faith efforts to satisfy fiscal responsibility while directing use of the taxpayers’ money. In an emergency situation, though, spending does not affect other programs, and decisions of which program or initiative funding should be decreased or removed is not required.

For example, the budget resolution for FY1999 would have given a maximum spending cap (amount) for the Commerce, Justice, State and Judiciary (CJSJ) Bill, one of the 13 spending bills. Within this bill, the budget resolution could have had a maximum DOC spending cap and possibly a maximum spending cap for its’ agency, NOAA. In the emergency supplemental, these statutory spending caps would have been increased for NOAA; Department of Commerce; and Commerce, Justice, State and Judiciary spending

bill, if NOAA received money for a project. The overall levels of the budget resolution would have also increased.

In reality, for the emergency supplemental FY1999 funding bill that included Hurricane Mitch reconstruction funds, the levels of the budget resolution and statutory spending caps were increased for USAID, as all money was appropriated to and coordinated through USAID. The DOC/NOAA received funds for Hurricane Mitch reconstruction efforts through an InterAgency Agreement (IAA).

What is an InterAgency Agreement?

An IAA can be used as a vehicle to transfer funds from one appropriation account and credit it to another only when it is authorized by law. 31 U.S.C. 1532. Two such existing legal authorities that could be used are the Economy Act and the Foreign Assistance Act. InterAgency Agreements (IAAs) can be used to optimize the benefits of each party's efforts when sharing information, providing needed services, or coordinating programs. A formal agreement should be used when there is an exchange of funds, personnel, or property. These written agreements should be properly developed, reviewed, and approved by both Agencies using the appropriate legal and programmatic authorities. This development coordination and review ensures that IAAs are in the proper format, reflect the appropriate authority for the specific agreement, are consistent with DOC and operating unit policies and plans, and do not violate any laws. IAAs that clearly stipulate the responsibilities of each party can contribute to more efficient and effective results, avoiding future misunderstandings (Department of Commerce, 2003).

One such example of an IAA is the Economy Act, 31 U.S.C. § 1535, which allows a government agency to obligate funds to another government agency for the

performance of services or the provision of goods by that agency (like a contract within the Government).

An Economy Act agreement – assuming it meets the criteria of subsection (a)(1) – is recorded as an obligation the same as any other contract. The determination of whether an interagency agreement is “binding” for purposes of recording under 31 U.S.C. § 1501(a)(1) is made in the same manner as if the contract were with a private party, that is they examine precisely what the parties have committed themselves to do under the terms of the agreement. The term “binding” in the context of interagency agreements reflects the undertakings expressed in the agreement without regard to the legal consequences (or lack thereof) of non-performance.

However, Economy Act agreements are subject to one additional requirement. Under 31 U.S.C. § 1535 (d), the period of availability of funds transferred pursuant to an Economy Act agreement may not exceed the period of availability of the source appropriation. 39 Comp. Gen. 317 (1959). The reason for this requirement is to prevent the Economy Act from being used to extend the obligation life of an appropriation beyond that provided by Congress in the appropriation act. 31 Comp. Gen. 83, 85 (1951). (Jensen, 2002, pp. 189-190)

When entering into any agreement the Department must remember the notion of mission. If the activities contemplated to be funded through the agreement do not fall within the mission of the agencies that are parties to the agreement, then the agencies have no authority to obligate the funds that implement the agreement. Appropriated funds may only be spent for the purposes for which they are authorized. 31 U.S.C. 1301.

(B. DiGiacomo, personal communication, January 2004). If the question is, “Should an agency be involved in an agreement?” then the answer depends on whether this agreement supports the mission of the agency. For example, DOC or NOAA could not enter into an agreement with USAID (or anyone) to provide health care for citizens of Nicaragua (or anywhere), as this is not a mission of DOC or NOAA. The Department of Health and Human Services, though, might be able to enter into such an agreement because it is part of their mission.

Once it is determined that the content of the agreement (grants, contracts, interagency agreements, etc.) falls within the mission of the Department/Agency concerned, special terms and conditions may apply. These rules and regulations are set forth to ensure that the money is spent in accordance with the Congressional intent (purpose, time, and amount) set in law by the authorizing, appropriation, and emergency supplemental bills signed by the President.

Authority Transfer

An even more powerful example of an IAA is one that employs section 632(b) of the Foreign Assistance Act of 1961, 22 U.S.C. 2392(b). Under this authority, USAID has the ability to pass its funds and legal authority to operate internationally to other U.S. government agencies if desired. This then allows an agency, such as NOAA, to become involved in international reconstruction efforts when using USAID funds for these efforts.

The President stated the Hurricane Mitch effort was a United States Government (USG) effort, and USAID would coordinate the efforts of all USG activities (United States Agency for International Development, 2003e). Thus the money was transferred

from USAID to NOAA, along with USAID's legal authority to expend money internationally through 632 (b), the Foreign Assistance Act of 1961.

Section 632(b) of the Foreign Assistance Act (FAA) of 1961, [22 U.S.C. § 2392 (b)], discusses "utilization of services and facilities of other agencies." It states:

Any officer of the United States Government carrying out functions under this chapter may utilize the services (including defense services) and facilities of, or procure commodities, defense articles, or military education and training from, any agency of the United States Government as the President shall direct, or with the consent of the head of such agency, and funds allocated pursuant to this subsection to any such agency may be established in separate appropriation accounts on the books of the Treasury.

Further, the Foreign Assistance Act states in other sections of 22 U.S.C. § 2395:

a) Manner of furnishing assistance; emphasis on loans

Except as otherwise specifically provided in this chapter, assistance under this chapter may be furnished on a grant basis or on such terms, including cash, credit, or other terms of repayment (including repayment in foreign currencies or by transfer to the United States Government of commodities) as may be determined to be best suited to the achievement of the purposes of this chapter, and shall emphasize loans rather than grants wherever possible.

b) Authority of the President

The President may make loans, advances, and grants to, make and perform agreements and contracts with, or enter into other transactions with, any individual, corporation, or other body of persons, friendly government or

government agency, whether within or without the United States, and international organizations in furtherance of the purposes and within the limitations of this chapter.

h) Term of contracts and agreements

A contract or agreement which entails commitments for the expenditure of funds made available...may, subject to any future action of the Congress, extend at any time for not more than five years.

k) Cost-type contracts with educational institutions; payment of reimbursable indirect costs

Any cost-type contract or agreement (including grants) entered into with a university, college, or other educational institution for the purpose of carrying out programs authorized by subchapter I of this chapter may provide for the payment of the reimbursable indirect costs of said university, college, or other educational institution on the basis of predetermined fixed-percentage rates applied to the total, or an element thereof, of the reimbursable direct costs incurred....

These sections of the FAA allowed USAID to transfer money and legal authority to NOAA through an IAA. The FAA also allowed NOAA, with Hurricane Mitch money, to enter into contracts and grants with individuals, corporations, and universities. Normally, according to the FAA, an IAA could extend no more than five years. However, in the case of Hurricane Mitch, an agreement was reached by USAID, OMB, and the Congress that the timeframe for all reconstruction activities would not exceed two and one half years (United States Agency for International Development, 2002a).

Budgetary Process

The Federal Government Standard Budget Process

In the standard federal government budget process, an appropriation of money for an activity takes at least three years from idea conception to the Congressional passage of an appropriation bill signed into law by the President. After this bill becomes law, only then can an agency begin implementation of a specific project. Ultimately the project must be terminated upon completion or by the appropriation time limit, whichever comes first. Unexpended balances are returned to the appropriate agency or the U.S. Treasury. Jensen (2002, p. 6) lists the steps in the federal government budget process (“life cycle” phases) as: executive budget formulation and transmittal to Congress, congressional action, budget execution and control, and return of unexpended balances (Figure 3).

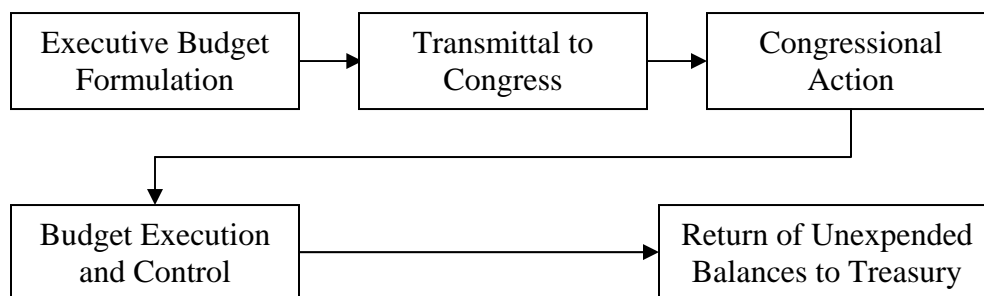


Figure 3. Steps of the Federal Government Budget Process (“Life Cycle” Phases).

Before a dollar in the U.S. Treasury can be disbursed, there has to be a Congressional appropriation. “The term ‘appropriation’ may be defined as ‘an authorization by an act of Congress that permits Federal agencies to incur obligations and to make payments out of the Treasury for specified purposes 31 U.S.C. §§ 701 (2) and

1101 (2)” (Jensen, 2002, p. 14). An appropriation does “not represent cash actually set aside in the Treasury” (Jensen, 2002, p. 14). Appropriations “represent legal authority granted by Congress to incur obligations and to make disbursements for the purposes, during the time period, and up to the amount limitations specified in the appropriation acts” (Jensen, 2002, p. 14).

Each agency must begin by formulating a budget, the process of which can be different between and within agencies. The formulation period can take 18 to 36 months while numerous iterations of project funding levels are negotiated. Agency budget personnel are always working with numerous fiscal year budgets. These include the current fiscal year (FY), the next FY budget which is the appropriation bill being discussed on Capitol Hill, the budget being prepared to transmit to Congress next year (two FY hence), and the planning and budget discussions for the FY three years hence.

During Executive branch budget formulation, each budget item must pass to the next higher office. For example, the NOAA Sea Grant budget is formulated in NOAA Research. The budget for NOAA Research is then passed up to NOAA headquarters. NOAA headquarters then creates the overall NOAA budget and passes it to the Department of Commerce. DOC incorporates NOAA’s budget (increasing or decreasing certain programs and projects) into the overall DOC budget. This allows for numerous layers of budgetary scrutiny. Finally all budgets end at the Office of Management and Budget (OMB) for at least two iterations. The OMB makes the final budget decisions for the President’s budget. At each stage, programs, initiatives, and activities can have funding levels increased, decreased, or totally removed.

After the budget iterations (about 18-36 months), the President's budget is then transmitted to "Congress on or before the first Monday in February of each year, for use during the following fiscal year. 2 U.S.C. § 631." (Jensen, 2002, p. 6). The Federal Government's current fiscal year begins October 1 and ends the following September 30 (Office of Management and Budget, 2003).

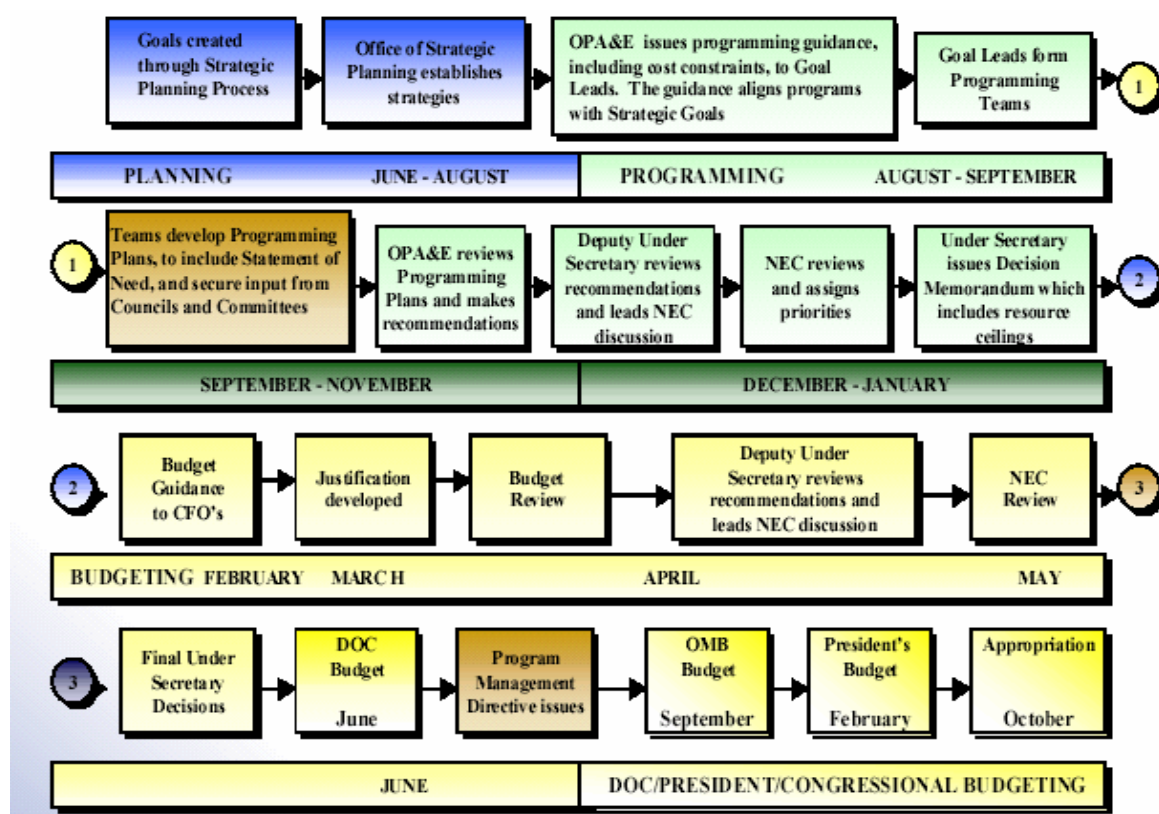


Figure 4. NOAA Planning, Programming and Budgeting Process.

Note. Taken from "NOAA business operations manual," by National Oceanic and Atmospheric Administration & the National Academy of Public Administration, 2003, In <http://www.ofa.noaa.gov/~nbo/index/Buisness%20Operations%20Manual.pdf>, p. 4.

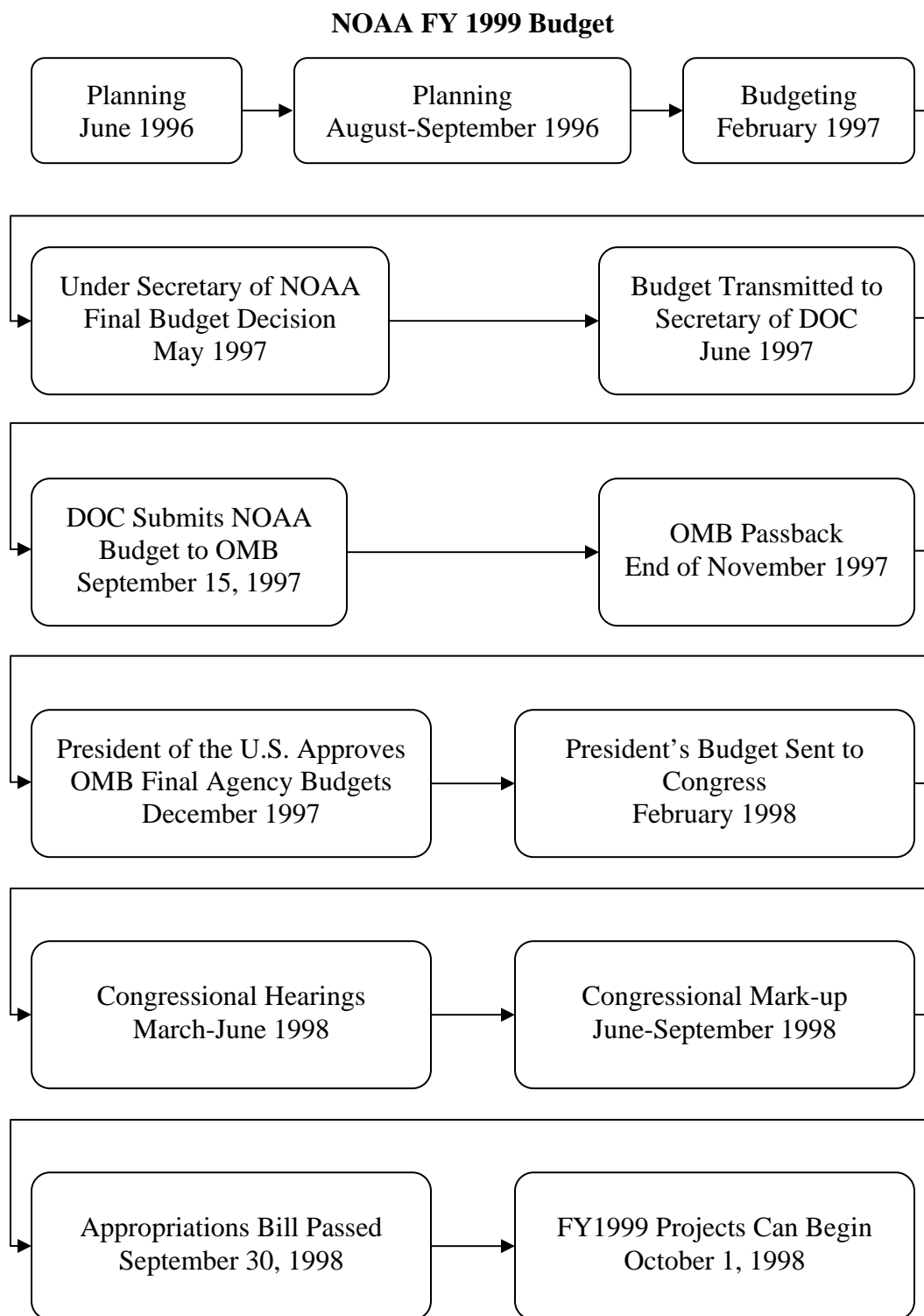


Figure 5. Timeline and Activities Taken at Each Stage in the Formulation of the NOAA FY1999 Budget.

NOAA's Standard Budget Process

Understanding the overall budget processing takes time as three to four fiscal years are being planned at any one time. An explanation of the budget process, however, using a specific example (or appropriation) can make the process clearer. Figure 4 shows an overview of this process (National Oceanic and Atmospheric Administration & the National Academy of Public Administration, 2003, p. 4). The example uses the funding for FY1999, the same year the emergency supplemental appropriations bill was passed to fund Hurricane Mitch (Figure 5). Formulation of the NOAA budget for FY1999 National Academy of Public Administration, 2003, p. 4). The example uses the funding for FY1999, the same year the emergency supplemental appropriations bill was passed to fund Hurricane Mitch (Figure 5). Formulation of the NOAA budget for FY1999

The following are key stages in the NOAA budgeting process. The dates highlight the time necessary for Hurricane Mitch activities if the normal budget process would have been utilized (Figure 5). (NOTE: all these steps reflect the current NOAA process. It may have been done differently in 1997) (National Oceanic and Atmospheric Administration & the National Academy of Public Administration, 2003, pp. 23-24):

1997

February: The NOAA Budget Office transmitted budget guidance to Line and Staff Office's Chief Financial Officers/Budget Chiefs, who, with assistance of matrix Goal Leads developed budget estimates.

Late March: Line and Staff Office's Chief Financial Officers/Budget Chiefs, with Goal Leads submitted budget estimates to the NOAA Budget Office who conducted analysis in April.

April: During this time, the Councils and Committees and the NOAA Office of Strategic Planning conducted concurrent review of budget estimates submitted to NOAA Budget prior to the Deputy Under Secretary (DUS) decision meetings.

May: The Deputy Under Secretary conducted review meetings, followed by NOAA Executive Council review meetings, and finally the Under Secretary decision meetings.

June: The NOAA Budget Office finalized the Secretarial budget submission and transmitted it to the Secretary of DOC.

August: Department of Commerce decisions were transmitted to NOAA. Then the NOAA Budget Office prepared appeals, as required for programs with decreased funding. These appeals from NOAA would seek to restore funding cut from a program. The final decision guidance was provided to the Line and Staff Offices, who, with the Goal Leads' revised programming plans, budget estimates and performance measures.

At the same time, the NOAA Budget Office prepared the NOAA annual performance plan and the technical OMB budget submission.

September 15: DOC submitted the NOAA budget to OMB.

End of November: OMB gave DOC a passback of the NOAA budget with changes.

December 1: The President approved the OMB final version of the agency budgets. At the same time, the NOAA Budget Office prepared an appeal for certain budget increases and provided a final decision guidance memo to the

NOAA line and staff offices. Once again the Line and Staff Offices, who, with the Goal Leads' revised programming plans, budgeted estimates, and performance measures, as the NOAA Budget Office revised the annual performance plan. The NOAA Budget Office also prepared the technical Congressional budget submission.

1998

February: The President's budget was sent to Congress. With the NOAA Line Office support, the NOAA Budget Office led the NOAA budget rollout to interested committees of Congress. As Congressional inquiries arose, the NOAA Budget Office coordinated all responses.

March – June: Congressional Appropriation Hearings were held. The NOAA Budget Office prepared hearing materials and coordinated the support of all appropriate offices.

June – September: Congressional Mark-up of the appropriations bill was undertaken. NOAA Budget Office prepared, with appropriate office support, an analysis of the amounts Congress was proposing to appropriate.

September 30, 1998: The appropriations bill should have been passed by September 30, 1998, to begin the FY1999 year on October 1, 1998. But in reality the bill was passed on October 21, 1998.

As can be seen from this example, the normal budget process could not have foreseen the need for disaster reconstruction funding as Hurricane Mitch had not even occurred. Unfortunately NOAA does not have rapid-response funding that can be used for immediate relief. Within USAID's Office of Foreign Disaster Assistance (OFDA)

these relief funds are available, though. Since the 1970's, OFDA has coordinated responsibilities with NOAA to mainly to provide weather data in relief efforts – early warning of storms and developing drought projections (Office of Technology Assessment, 1980).

Funding Flow: NOAA's Allocation of Funds

Once an appropriation is passed by Congress and is signed by the President into law, the funding begins to flow to the appropriate agency. Upon the President's signature, the OMB creates an apportionment, a spending plan, for the appropriate Department and releases funds. 31 U.S.C. 1512 and 1513. It is illegal to obligate funds in advance of or exceeding an apportionment or other formal subdivision of funds. 31 U.S.C. 1517. The Department then releases funds to its' Agencies. The Agencies each have a system for allocating and releasing their resources. At the office level, depending on the time taken at OMB, the Department, the Agency, and the line office, it could be a month or more before funds are allocated and released to expend on projects.

Funds are appropriated for a specific purpose. These funds need to be obligated quickly so projects can begin and results can be obtained. In an attempt to shorten the time necessary to release funds, NOAA recently undertook a review of the allocation and release of funds timelines. The following refers to NOAA's new allocation process upon passage of an annual fiscal year appropriation.

On October 1, NOAA issues its base level budget allocation, known as the target allowance. This level typically represents last year's spending level. If a Continuing Resolution (CR) is in effect, it determines the temporary rate at which these funds can be spent. NOAA Line/Staff Offices (LO/SO) are expected to

begin their base allowance process immediately upon receipt of this target allowance.

Following the final appropriation, the NOAA Budget Office will continue its standard allocation cycle time for program increases/decreases of 15 working days, or less, from the date of enactment of the appropriations bill (Lautenbacher, 2002).

The LO/SO budget offices then have a maximum of five working days after receiving their allowance from the NOAA Budget Office to distribute their funds. For example, NOAA Sea Grant received \$62 million dollars through the appropriations process. This money, though, can not be spent by NOAA SG until it is allocated by the NOAA Budget Office (15 working days) and then distributed by the Line Office (5 working days).

Thus, NOAA SG can not process any grants or contracts for awarding to a recipient to undertake projects and do research for at least four weeks. If the appropriations bill is not passed by September 31 of each year (which rarely happens), the awarding of grants and contracts are postponed longer.

The 15-day cycle time for the NOAA Budget Office and the additional 5-day cycle time for LO/SO distribution can overlap. LO/SOs are expected to work on their allocations simultaneously and in coordination with NOAA Budget. In fact, much of NOAA Budget's 15-day cycle time is to allow for periods of consultation with the LO Management and Budget staff. The total allocation cycle time is 20 working days, nearly a full calendar month. (Lautenbacher, 2002)

Following fund allocation and release, each LO/SO then can begin obligating and executing the appropriated funds.

Obligation and Expenditure of Appropriated Funds

Once an appropriation law is passed by Congress, signed by the President, and is apportioned, allocated, and released to the appropriate Executive Branch agencies (LO/SO), execution of the appropriated funds through obligations and expenditures begins. An obligation, “must be charged against the relevant appropriation in accordance with the rules relating to purpose, time, and amount” (Jensen, 2002, p. 179). Because of the myriad of activities and projects conducted by numerous different entities on behalf of the U.S. Government, a variety of transactions occur to obligated funds. An obligation is “some action that creates a liability or definite commitment on the part of the government to make a disbursement at some later time” (Jensen, 2002, p. 180). When the obligations are recorded and the expenses are paid, part of the appropriation has been expended. For Hurricane Mitch, USAID had to obligate all money by September 2000 to activities and other agencies receiving reconstruction funding based on the agency proposal submitted (H.Res. 1141, 1999). This is important, for in the case of Hurricane Mitch funding, all obligated money, then, had to be expended by December 31, 2001 (United States Agency for International Development, 2002a). The remaining money, not among the amount approved by Congress for certain projects to continue past December 31, 2001, had to be returned to the U.S. Treasury.

For appropriated funds to be legally available for spending on the obligated actions, the three following elements must be adhered to: purpose, time, and amount (Jensen, 2002, p. 41). Depending on the limitations created by the appropriation, these three elements can have enormous impacts on a disaster stricken region. While the yearly or emergency supplemental is being discussed in the Executive and Legislative

branches, the region is slowly rebuilding by whatever available means. When assistance arrives, the restrictions could be prohibitive, including requiring quick spending, which could invite corruption, poor planning, and disregard for the environment. Alternatively, the limitations could be non-existent, allowing for more flexibility in planning and execution of any project. To elaborate, Jensen defines purpose, time, and amount as follows:

1. “The ***purpose*** of the obligation or expenditure must be authorized” (Jensen, 2002, p. 41). An authorization to undertake a certain action must be passed by Congress in a vehicle such as: an authorization bill, appropriations bill, or other legislation, then signed into law by the President.
2. “The obligation must occur within the ***time*** limits applicable to the appropriation” (Jensen, 2002, p. 41). The three types of appropriations based on ‘time’ are annual, multiple-year, and no-year appropriations. This is the amount of time Congress allows for the appropriations to be expended or obligated (in the case of grants and contracts) for a current need. Unless expressly authorized by Congress, the money cannot be expended on a need arising in another fiscal year. Therefore a FY1999 appropriation cannot pay to build a bridge in FY2004 unless expressly authorized.
3. “The obligation and expenditure must be within the ***amounts*** Congress has established” (Jensen, 2002, p. 41). For example, it is not legal to spend \$60 million dollars on disaster research, when \$20 million was authorized for research and \$40 million was authorized to assist communities in creating disaster preparedness plans. If the money is not spent according to Congressionally

established amounts, the government official is in violation of the Antideficiency Act.

The Antideficiency Act, 31 U.S.C. § 1341, “prohibits officers of the government from making or authorizing obligations or expenditures in excess of or in advance of available appropriations” (Jensen, 2002, p. 130). If authorized payments or expenditures do occur, the agency could transfer money to cover that payment only if it has “transfer authority or other clear statutory basis for making further payments...” (Jensen, 2002, p. 132). Otherwise the agency needs “to seek deficiency or supplemental appropriations from Congress and to adjust or curtail operations...” (Jensen, 2002, p. 132). If a violation of the Antideficiency Act does occur the employee or officer could be subject to administrative and/or penal sanctions that range from suspension without pay, removal from office, a fine, and/or imprisonment for not more than two years (Jensen, 2002).

As a summary, any initiative that began in 1996, having survived the Executive branch budget formulation and Congressional action, would have been implemented after October 1, 1998, for fiscal year 1999. As has been common in the recent past, Congress has not passed most of the required thirteen yearly appropriation bills on time. Therefore, the execution of the initiative is delayed. The FY1999 appropriation bill that included the funding for NOAA was submitted to Congress on the first Monday in February 1998. This bill was finally passed by Congress and then signed by the President on October 21, 1998. Thus, realistically, the FY1999 initiative would have begun after November 1998. If this was a new competitive initiative, the money may not have been obligated or executed for another six to twelve months due to the need to compete the funding. The initiative that began in early 1996 may not have been executed through a procurement

contract, grant agreement, or cooperative agreement until mid-to late-1999 (depending on the “time” limit of the obligation).

Spending Vehicles to Obligate and Execute Funds

Three main spending vehicles (procurement contracts, grant agreements, and cooperative agreements) allow for obligation and execution of the appropriation funds in accordance with purpose, time, and amount. The legal definitions of each of these spending vehicles, taken from Title 31, United States Code, are explained below:

§ 6303. Using procurement contracts

An executive agency shall use a procurement contract as the legal instrument reflecting a relationship between the United States Government and a State, a local government, or other recipient when –

- 1) the principal purpose of the instrument is to acquire (by purchase, lease, or barter) property or services for the direct benefit or use of the United States Government; or
- 2) the agency decides in a specific instance that the use of a procurement contract is appropriate.

§ 6304. Using grant agreements

An executive agency shall use a grant agreement as the legal instrument reflecting a relationship between the United States Government and a State, a local government, or other recipient when –

- 1) the principal purpose of the relationship is to transfer a thing of value to the State or local government or other recipient to carry out a public purpose of support or stimulation authorized by a law of the United States

instead of acquiring (by purchase, lease, or barter) property or services for the direct benefit or use of the United States Government; and

- 2) substantial involvement is not expected between the executive agency and the State, local government, or other recipient when carrying out the activity contemplated in the agreement.

§ 6305. Using cooperative agreements

An executive agency shall use a cooperative agreement as the legal instrument reflecting a relationship between the United States Government and a State, a local government, or other recipient when –

- 1) the principal purpose of the relationship is to transfer a thing of value to the State, local government, or other recipient to carry out a public purpose of support or stimulation authorized by a law of the United States instead of acquiring (by purchase, lease, or barter) property or services for the direct benefit or use of the United States Government; and
- 2) substantial involvement is expected between the executive agency and the State, local government, or other recipient when carrying out the activity contemplated in the agreement.

When obligating and executing funds, the NOAA must follow these legal definitions as the guidelines.

NOAA's Obligation Process

The NOAA can obligate money to a non-governmental entity through contracts, grants, and cooperative agreements. The first step is to determine which vehicle should be used to obligate the funds. If a contract is determined to be the appropriate vehicle

based on § 6303, the next step, vital to successful performance, is to choose the appropriate type of contract to award. The Acquisition and Grants Office (AGO) in the NOAA, awards all three vehicles. The mission of this office is “to acquire quality products and services, at a reasonable price, and to process and administer financial assistance awards in support of the agency mission to meet our customers’ needs, on a timely basis, in a courteous manner, consistent with public policy” (National Oceanic and Atmospheric Administration Acquisition and Grants Office, n.d.).

The following section describes in detail the types of contracts available. It is always advantageous to talk with the contract specialist, as soon as the need arises, to determine which type of contract best suits the purpose, time, and availability for the current need. Also, before any decision is made, it is always necessary to make sure the most current laws and executive orders are applied. This could prevent extended delays later.

The type of contract awarded “determines the cost and performance risks which are placed on the contractor” (National Oceanic and Atmospheric Administration Acquisition and Grants Office, 2000). For NOAA, there are three broad contract groups: firm fixed price, cost reimbursement, and other types which can be used individually or in combination. The descriptions below are adapted from the National Oceanic and Atmospheric Administration’s AGO (2000).

In firm fixed price contracts the contractor must successfully execute the contract by delivering supplies or services for the price agreed upon. If it costs the contractor more than they expected, they lose money as the payment is the amount originally agreed upon. If it costs them less, they profit more. This contract is suitable for supplies and

services because the detail can be sufficient to ensure complete understanding of the requirements by both parties. The assessment of the inherent risks of performance can be evaluated prior to signing the contract.

Within the fixed price contract group, you can award contracts with:

- economic price adjustment factors to allow for industries where costs fluctuate frequently either up or down,
- various incentive types which can be used to reward good performance or to impose provisions to deduct for poor performance,
- price redetermination provisions which permit issuing an order on a fixed price basis and allow for revisiting the reasonableness of that pricing later during the contract performance, and
- a specified level of effort.

A cost reimbursement contract allows for payment of all incurred costs that are within cost standards and are reasonable within a predetermined ceiling. Therefore, these types of contracts place the least cost and performance risk on the contractor. The contractor needs to use their "best efforts" to complete the contract, but a fixed price is not possible due to the uncertainties to estimate costs with sufficient accuracy to obtain a fair and reasonable price. For example, if a particular task contains too much uncertainty, the contractor is asked to price it on a fixed price basis. The contractor then builds in contingency costs. These allow for any unknowns, and it would likely cost the Government much more money than if the contractor could price it on a cost reimbursement basis. Within the cost reimbursement contract category, there are numerous types.

- Cost type - which involves payment of all incurred costs within a predetermined total estimated cost.
- Cost sharing - where the Government and the contractor agree to split the cost of performance in a predetermined manner. No fee is given.
- Cost-plus-fixed-fee - which allows for payment of all incurred costs within a predetermined amount plus an agreed upon fee which will not change.
- Cost-plus-incentive-fee - which provides for adjustment of the fee (either up or down) using a predetermined formula based on the total allowable costs in relation to total targeted costs.
- Cost-plus-award-fee - which provides for negotiation of a base fee with an award fee which can be given based upon a judgmental evaluation by the Government of the contractor's performance and cost control.

The latter two contract types require considerable monitoring by the program and contracting staff and are usually reserved for the larger dollar value, highly visible procurements.

Other Types of Contracts include, the "Labor-Hour/Time and Materials" contract that pays an agreed upon fixed rate for services rendered and for materials at cost plus a handling fee, and the "Letter" contract that is a preliminary instrument which permits a contractor to begin work before all of the contract terms and conditions have been agreed upon mutually. This type of contract is only used in circumstances of unusual and compelling urgency. Another type of contract is an "indefinite delivery" contract that can be of three different types: definite quantity, indefinite quantity, and requirements. In

general, the indefinite delivery contract provides for delivery of goods or services upon the issuance of a delivery or task order as needs arise.

CHAPTER III

METHODOLOGY

This study was completed via archival research and surveys utilizing a case study framework. An extensive review of the peer-reviewed literature, as well as the laws, policies, and government publications relevant to budget and funding flow of federal appropriations was undertaken. The following paragraphs discuss the searches conducted and the results obtained via the archival research. Subsequent to this, the survey instrument: creation, clearance, and usage are described.

Searches were conducted via The University of Southern Mississippi's library, both the on-line version and the library reference stacks on campus, as well as a general search with assistance from the reference librarian. Research of the literature was also undertaken at the Library of Congress both personally and with the assistance of reference librarians in the general library section and the Central American collection. Searches were also conducted using the Google search engines, NOAA search engines, Red Cross database, the Federal Emergency Management Agency (FEMA) on-line library, U.S. legal databases, U.S. Congress database and websites, the U.S. Agency for International Development (USAID) website and database, and other organizational websites. Finally, a professional NOAA librarian search accessed numerous databases including PAIS International, US NEWswire, Dissertation Abstracts Online, Gale Group Magazine Database, Wilson Humanities Abstracts, Aquatic Sciences and Fisheries Abstracts, and CAB Abstracts.

Key word searches utilized in these different searches included terminology for disasters, public policy, frameworks, manuals, and international aid. This included the

EPSCOhost and academic search fullTEXT premier databases and journals such as International Journal of Mass Emergencies and Disasters, The Natural Hazards Observer, Disaster Research, and Disasters: The Journal of Disaster Studies, Policy and Management.

Items and research discovered during these searches included:

- The FEMA emergency management guide for business and industry, which includes a step-by-step approach to emergency planning, response, and recovery at the local level. This document does not discuss the internal workings of the federal agencies.
- Numerous other FEMA documents describing disasters and responses for the United States
- Sea Grant Hazards Network at <http://www.haznet.org>. This site is still in the initial phases of development and contains mainly definitions and current activities of the Sea Grant network.
- The OFDA/CRED international disaster database at <http://www.cred.be/emdat/welcome.htm>. The site was scoured and bibliographies accessed.
- FirstGov for state and local employees: disasters and emergencies at http://www.firstgov.com/Government/State_Local/Disasters.shtml. Once again documents were reviewed for relevance.
- Operation Fresh Start – using sustainable technologies to recover from disaster at <http://www.sustainable.doe.gov/freshstart/>

Archival research produced peer-reviewed literature on the theory of punctuated equilibrium and other theories that have been created to explain the changes occurring in national policy settings and in the Federal Government spending methods. As for the peer-reviewed study of funding expenditures at the level of obligations, numerous articles did address the outcome and effectiveness of previously spent U.S. international aid and disaster reconstruction funds, but only at the level of funding expenditures. Thus a week long, intensive training course in the budget process and appropriations law was taken in May 2003 through Management Concepts, Inc. This training revealed that at this level of detail (obligations), employee actions are dictated by the principles of Federal appropriations law, which incorporate pertinent policies and theories of both the Executive Branch agencies and international funding laws. It was also realized that not all employees managing Federal dollars understand all the intricacies of Federal appropriations law. Thus, a step-by-step guide for obligating money for reconstruction efforts after an international natural disaster is needed.

With the desire to find more peer-reviewed articles, experts, who have worked in the field of funding international reconstruction activities and in the field of natural hazards and disasters from both the headquarters and field positions, were asked to identify peer-reviewed literature and other theories behind federal funding frameworks. To date, email responses and correspondence have been received from research university disaster professionals (University of Delaware, University of Colorado at Boulder, and the University of Southern California), policy professionals, journal editors, and other masters and Ph.D. students from around the world. The condensed suggestions and responses follow:

Dr. Havidán Rodríguez, Director of the Disaster Research Center at the University of Delaware stated, "You are pursuing a very interesting topic. You are correct, trying to find peer reviewed publications focusing on funding frameworks within the Federal Government on issues such as natural disasters and international affairs, is quite difficult. I would urge you to explore two sources, if you have not done so already. You can search our Center's Resource Collection, which can be accessed on-line at <http://www.udel.edu/DRC/>. Also, I would suggest you search the Natural Hazards Center's (at the University of Colorado; <http://www.colorado.edu/hazards/>). These are two of the most comprehensive collections in the world, ours focusing on the social/behavioral aspects of disasters" (H. Rodríguez, personal communication, April 8, 2004).

Dennis Mileti - Senior Research Scientist at the University of Colorado at Boulder's Natural Hazards Center and the author of a National Academy of Sciences comprehensive study on a disasters overview. From his perspective: "Your dissertation sounds very interesting. Good luck with it. You need not go crazy looking for publications. The Natural Hazards Center here at CU Boulder has kept a library for 29 years. It is the largest collection of publications on hazards and disasters in the world. Every item has been read, abstracted, and keyworded. Call the Center at 303-492-6818 and ask to speak to our librarian" (D. Mileti, personal communication, April 7, 2004). Upon speaking with the librarian, her response was there is an absence of peer-reviewed literature on this subject of funding frameworks.

Paul Harvey, one of the editors of "The Journal of Disaster Studies, Policy and Management" did not have suggestions for references, but encouraged a manuscript submission.

The request was forwarded to the editor of "Disaster Research" (the Natural Hazards Center's online newsletter). This newsletter is sent to over 3000 subscribers from around the world, but no responses that could add additional peer reviewed literature were received.

A conference invitation from Dr. Havidán Rodríguez, from the Disaster Research Center (DRC) at the University of Delaware, was accepted to attend a two-day conference focusing on: the growth and development of the field of disasters, from a social science perspective; the theoretical, methodological, and public policy contributions of the field of disasters at the national and international level; lessons learned and best practices that have emerged in the field; and trajectories or opportunities for social science research in disasters.

This conference provided a stimulating and unique environment to generate a discussion that will lead to the development of disaster research initiatives and projects in the near future. Leaders of the disaster field, scholars, researchers, practitioners, students, and representatives from funding agencies generated an in-depth discussion on how social science research has and will continue to enhance the understanding of the human and social dimensions of disasters.

Finally, of the 20 article abstracts retrieved from the NOAA librarian, only two peer-reviewed articles were deemed appropriate for further review, based on the abstracts. These two produced no significant information. Two National Academy of

Science studies, though, on natural hazards were reviewed and parts of their content are utilized in this dissertation.

After the initial archival research, the case study framework, as utilized by Robert Yin and described by Colin Robson, is “a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence” (Robson, 2002, p. 178). This dissertation focused on the data collection for the empirical investigation.

For the purpose of this case study, a survey instrument was created to document NOAA’s activities through experts, personnel involved with Hurricane Mitch activities reconstruction efforts as derived from publications and government documentation. The survey instrument was read and edited by four experts for question relevancy, wording, and completeness. The doctoral committee also reviewed this instrument (Appendix A). The University of Southern Mississippi required a permission letter from NOAA to interview its employees. The NOAA permission to interview letter (Appendix B) was submitted, along with the survey instrument and conflict of interest statement (Appendix D), to The University of Southern Mississippi, Institutional Review Board for approval. Exempt approval for this survey instrument was granted on October 16, 2003 (Appendix C). Surveys were conducted with personnel involved in the Hurricane Mitch reconstruction effort to assist in retrieving the appropriate documentation for creation and implementation of the NOAA’s funding plan in the Hurricane Mitch disaster. The detail of responses ranged with respect to the reconstruction responsibilities of the survey respondent and all responses reflected the view of the individual respondent, not the view of the agency for which they worked.

Experts were asked to identify others associated with the Hurricane Mitch reconstruction effort. These suggestions were analyzed for their relevance to the study, and appropriate personnel were also sent surveys. The combined list of respondents can be found as Appendix E. The organizations included: USAID, NOAA Hurricane Mitch agency program manager, Department of Commerce (DOC) Office of the General Counsel (General Law Division and Federal Assistance Law Division), NOAA Sea Grant, Puerto Rico Sea Grant program, Florida Sea Grant program, NOAA Oceans Service, and U.S. General Accounting Office.

Follow-up interviews via email, telephone, and in-person discussions were conducted with the same respondents to clarify and further discuss survey responses when the response was not clear and additional information was needed. Many of the survey responses were verified with government documentation and published reports revealed through the survey response.

To develop a working framework for application within a government organization, the origins and some of the behind-the-scenes aspects of what eventually became documentation of the “standard protocols,” the laws, policies, and processes of the everyday work of the Federal government and NOAA were uncovered via the archival research and survey responses. Thus, this framework incorporates the knowledge of the current processes and procedures from the archival research and the case study to create a step-by-step comprehensive approach for NOAA in future international natural disaster reconstruction efforts.

CHAPTER IV

RESULTS

Case Study: Hurricane Mitch for NOAA

As USAID aptly states, “The massive and successful response to these disasters was as unparalleled as the devastation itself” (United States Agency for International Development, 2003e, p. 15). Hurricane Mitch ravaged Central America, becoming a category 5 hurricane on October 26, 1998, and slowly made landfall on October 29, 1998. Mitch brought tremendous rainfall and flooding ensued as entire villages were destroyed. Years of development progress were erased as Hurricane Mitch threatened to also undo the current economic growth, poverty reduction, and fledgling democratic governments of the Central American countries involved (United States Agency for International Development, 2003e).

The U.S. Government quickly met the challenge with disaster relief assistance. At the same time, a “call to action for a broad, all-cabinet response to reconstruction needs (United States Agency for International Development, 2003e, p. 6)” was issued. President Clinton “instructed all elements of his Administration to pursue a comprehensive approach that addresses such related issues as trade, debt relief, immigration and reconstruction assistance to ensure that reconstruction produces real, enduring progress for the people of Central America” (United States Agency for International Development, 1999d). Public service announcements with Mrs. Tipper Gore and Mr. Dennis Martinez were launched by USAID to target public donations for hurricane victims (United States Agency for International Development, 1998b). Through the charge delivered by President Clinton, NOAA would be involved through

DOC in the reconstruction efforts in Central America. As this was NOAA's first experience with such a large portion of the international effort working with USAID and the other USG agencies, documentation of NOAA's involvement and recommendations for future efforts was needed. Thus, this doctoral study of NOAA's funding framework for Hurricane Mitch reconstruction activities was undertaken.

On February 16, 1999, the Administration's request totaling \$956 million, \$667 million of which was for reconstruction activities following Hurricanes Mitch and Georges was announced by First Lady, Hillary Clinton (United States Agency for International Development, 1999d). President Clinton then sent the emergency disaster supplemental aid package to Congress (Table 12). The package mainly assisted Central America in rebuilding and coping with the after affects of Hurricane Mitch, allowing the U.S. to assist neighbor nations (White House, 1999; United States Agency for International Development, 2001c). A comprehensive response was needed with USAID leading the team effort of thirteen other U.S. government agencies, as well as other governments, international financial institutions, and the Inter-American and United Nations systems (United States Agency for International Development, 1999c).

With the passage of the Emergency Supplemental Appropriation Act of 1999 (H.Res. 1141, 1999) by Congress on May 21, 1999, \$112.0 million dollars was obligated to the USG partners (Table 1, 2, and 12). Through an InterAgency Agreement with USAID utilizing the Economy Act, \$17.1 million would ultimately be utilized by NOAA of the \$1.04 billion allocated for the effort (Table 3 and 12).

Table 12

Major Milestones of Activities Associated with the Emergency Supplemental Appropriations Act of 1999 (HR 1141) and the Hurricane Mitch Reconstruction Projects.

February 16, 1999	Emergency Supplemental spending bill announced by Hillary Clinton and sent to Congress
Spring 1999	Department of Commerce prepares program description for United States Agency of International Development (USAID) funding with input from its' Agencies
May 21, 1999	Congress passes Emergency Supplemental. It becomes Public Law No. 106-31, stating all money to be obligated by Sept. 30, 2000. Agreement made by USAID, Office of Management and Budget, and the Congress to expend all funds by December 31, 2001.
April – September 1999	USAID staffs missions, prepares official budget request, and prepares InterAgency Agreements
September 17, 1999	InterAgency Agreement between USAID and National Oceanic and Atmospheric Administration (NOAA) fully executed; USAID transfers to NOAA 50% of the money needed for NOAA's work plan
September 1999	NOAA begins implementation of funding (timelines shift from 3 rd quarter FY 1999 to 1 st quarter FY2000)
September 1999	USAID obligates all emergency supplemental funding
November 16-18, 1999	All-United States Government Agency Conference in Tegucigalpa, Honduras
~6-8 weeks	National Weather Service (NWS) selection of contractor(s)
~4-6 weeks	NWS writes Statement of Work (SOW)
January 2000	Work begins on NWS activities
2000-2001	Other parts of NOAA obligate and expend funds
Dec 31, 2001	Funds to be fully expended (United States Agency for International Development, 2001c).
March 2002	Final reports due and final spending of money completed

The following analysis combines current laws & regulations with what occurred following Hurricane Mitch to create a framework or step-by-step guide of how NOAA could operate in funding international reconstruction efforts after a major natural disaster. Many activities were happening simultaneously, creating the need for overlapping timeframes for reconstruction funding implementation. This overlapping timing of agency activities made agencies dependent on each other for information, funding, and ultimately the implementation of activities in Central America.

Disaster Declaration

A disaster was declared for Central America as Hurricane Mitch was churning over Central America. USAID/OFDA was on-the-ground during the Hurricane making assessments and verifying relief needs (United States Agency for International Development, 2001a).

Who Did NOAA Contact First?

The first contact for involvement of DOC/NOAA in the reconstruction efforts came through David Festa, DOC Senior Advisor to the Secretary of Commerce at a White House meeting (J. Murray, personal communication, December 19, 2003). As this was one of the first all cabinet responses to a natural disaster, a framework was not in place (United States Agency for International Development, 2003e).

Why Did DOC/NOAA Implement Part of the Funding?

As it was to be an “all-cabinet response to reconstruction needs” (United States Agency for International Development, 2003e, p. 6), the DOC needed to be involved. The NOAA, via its’ mission and capabilities, had the expertise needed to complete certain reconstruction activities in Central America. USAID could use this available expertise, shortening the time needed to begin the reconstruction activities. The purpose and goals of the U.S. DOC program will be discussed later.

Reconnaissance Trips

USAID almost immediately began in-country studies with the Office of U.S. Foreign Disaster Assistance (OFDA) conducting on-the-ground assessments (Table 13). First lady Hillary Clinton also traveled to Central America in November 1998, as well as many other government officials and Congressional delegations to view the damage and

formulate a plan for U.S. involvement in the reconstruction efforts (United States Agency for International Development, 1998a) (Table 13).

DOC and NOAA also conducted reconnaissance trips to assess damage and plan reconstruction activities. DOC, NOAA Sea Grant, and NOAA NWS because of their mission and authorizations used funds from the traditional appropriation to conduct reconnaissance trips to the affected areas from January to April 1999 (Table 13). These trips assisted in developing the U.S. DOC's implementation plan by providing on-the-ground needs analysis.

Table 13

Reconnaissance Trips to Assess Damage in Central America Following the Hurricane Mitch Strike on October 26-November 1, 1998.

November 1998	USAID studies in affected countries
November 1998	Hillary Rodham Clinton travels to Central America
January 1999	"Official" Commerce delegation travels to Honduras, Guatemala, and Nicaragua
Jan/Feb 1999	University of Puerto Rico Sea Grant College Program, Marine Outreach Program conducts trips to Gulf of Fonseca
March 1999	National Weather Service meets with National Meteorological and Hydrologic Services (NMHS) of affected countries in Honduras
After April 1999	USAID coordinated "assessment" trips with the different agencies

The DOC took an "Official" Commerce delegation to Honduras, Guatemala, and Nicaragua to view the damage (Table 13). "The purpose of the trip was to see what the Department and the private sector could do to help with reconstruction of the four affected countries" (R. Jubach, personal communication, December 2003).

U.S. DOC's NOAA Sea Grant contributed \$50,000 for reconnaissance trips to the Gulf of Fonseca to assess damages (Table 13). The team was selected based on their expertise of the social aspects, risks, recovery, and expertise in technology transfer in

similar environments (R. Chaparro, personal communication, December 3, 2003). The University of Puerto Rico Sea Grant College Program's (UPRSGCP) Marine Outreach Program used this funding to conduct four reconnaissance trips to Tegucigalpa, Islas de la Bahia, coastal towns from Trujillo to Puerto Cortez, and other municipalities around the Gulf of Fonseca including Choluteca, Puerto Morazan and Managua (R. Chaparro, personal communication, December 3, 2003). As NOAA Sea Grant (SG) had undertaken some of the first United States Government reconnaissance in Central America after Hurricane Mitch, President Clinton was able to cite this as an example of U.S. activities in his visit to Central America showing the U.S. was actively formulating plans. As the reconstruction plans and budgets were being formulated, this news release gave legitimacy within the agency process to NOAA SG who had not been involved in international disaster activities previously (J. Murray, personal communication, December 19, 2003).

The NOAA NWS organized, sponsored, and funded a workshop with National Meteorological and Hydrologic Services (NMHS) of affected countries in March 1999 in Tegucigalpa, Honduras (Table 13). This was "to bring the region's hydrology and meteorology agencies together to discuss needs for improving their capabilities for early warnings and disaster response" (U.S. Department of Commerce, 2002, p. 14). Information from this workshop assisted in developing the U.S. DOC's implementation plan.

Finally, USAID coordinated "assessment" trips to all four affected countries. These trips included representatives of USG agencies that would be involved in the reconstruction programs. These trips took place after the President of the U.S. signed the

emergency supplemental bill into law. Essentially USAID set up trips to view damage, talk to counterparts and other various government agencies, NGOs, and the missions. The idea was to help with USG agency proposal finalization (to some degree) and organize in country project plans (R. Jubach, personal communication, December 2003). The USAID assessment trips were funded by each USG agency because the emergency supplemental funding was not yet available (R. Jubach, personal communication, December 2003). Agencies would hope to recoup this money once the IAA was implemented. The USG agencies had the authority to legally spend this money because the emergency supplemental appropriation bill had already been signed into law. The funds had not arrived at each Agency because the spending plans had not been approved by Congress nor obligated by USAID through the IAA.

Legislation – Why an Emergency Supplemental?

When Hurricane Mitch struck in 1998, the normal budget formulation process would not have provided funds for disaster relief and reconstruction activities until at least October 1, 2001 for FY2002 because there is no account appropriated for unforeseen reconstruction activities as there is for emergency relief funding through USAID/OFDA. Therefore, as after previous catastrophic natural disasters, an emergency supplemental was needed as

...providing essential assistance to victims of natural disasters (like Hurricane Mitch) clearly falls in the category of needs that are urgent, unanticipated, and essential – that is, emergency requirements. This request clearly deserves to be funded quickly, fully, and without requiring offsets that could force unacceptable reductions in important programs. (Office of Management and Budget, 1999)

The emergency supplemental appropriations act of 1999 (H.R. 1141) was passed by Congress on May 21, 1999 and signed into law by the President becoming Public Law 106-31 (Table 12). This law stated funds would remain available until September 30, 2000, with provisions. This meant the funds needed to be obligated for activities by September 30, 2000 (H.Res. 1141, 1999). The law also stated:

...that the entire amount shall be available only to the extent an official budget request for a specific dollar amount that includes designation of the entire amount of the request as an emergency requirement as defined in the Balanced Budget and Emergency Deficit Control Act of 1985, as amended, is transmitted by the President to the Congress. (H.Res. 1141, 1999, p. 13)

Thus USAID had to create an official budget request (proposal) that would describe how to spend the appropriated funding. Once Congress accepted this official budget request, then USAID could begin funding projects. This occurred in the summer of 1999 (Table 12). During preparation of the official budget request, USAID was also increasing mission staffing to be prepared to handle the increased funding, as well as, preparation of the agreements to transfer money and authority to the other thirteen agencies (Table 12).

All funds were to be fully expended through USAID and thirteen other federal agencies within two and one half years, that is by December 31, 2001 (United States Agency for International Development, 2001c). This date was set by an understanding between USAID, OMB, and the Congress for the length of time for reconstruction activities (United States Agency for International Development, 2002a). The two and one half years is about the time needed for a typical budget request to be planned, sent to Congress, and ultimately passed in an appropriations bill. It was later agreed that funds

could be expended to close out activities until March 2002. A small number of approved projects continued after this time (United States Agency for International Development, 2003e).

Creation of the DOC/NOAA Implementation Plan

As a team was forming to create an implementation plan, David Festa asked NOAA SG to create a concept paper for an extension program in Nicaragua and Honduras after a previous conversation with James Murray (Extension leader, NOAA SG). This occurred about November 1998 (J. Murray, personal communication, December 19, 2003). UPRSGCP was contacted immediately and within a few days a concept paper was created. This document asked for three million dollars to fund ten extension agents in each country for a three-year period under the leadership of Puerto Rico Sea Grant (J. Murray, personal communication, December 19, 2003). This quick and enthusiastic response came as the University of Puerto Rico faculty, who, previously wanting to be leaders in the Caribbean basin following hurricanes, understood the human devastation and their humanitarian spirit was uncovered (J. Murray, personal communication, December 19, 2003).

Ultimately, a small team undertook creation of the DOC/NOAA implementation plan.

Under the coordination of Valerie [Blatnik-Siegel, NOAA liaison with DOC] and David [Festa, DOC Senior Advisor to the Secretary of Commerce], each potentially contributing line office and bureau was asked to provide a proposal and budget (based on their ideas of what needed/could be done). At the beginning, Commerce didn't have an exact figure in mind for a budget and I do

not believe that USAID had an exact figure either. Prior to the development of inputs from each office, there were a series of meetings chaired by Valerie where she passed on information from USAID (she attended the USAID meetings as the Commerce representative). (R. Jubach, personal communication, December 2003)

During numerous downtown D.C. meetings, the focus from the ocean standpoint, ultimately was directed towards the Gulf of Fonseca and water monitoring. During the next several months, the original NOAA SG idea was narrowed and tweaked to center around the Gulf of Fonseca and water quality and shrimp issues (J. Murray, personal communication, December 19, 2003). For the NOAA NWS activities, proposal development had begun with input from the workshop in Honduras (R. Jubach, personal communication, December 2003).

“In any event, once this was done, Valerie and David more or less formed a team to then create a final DOC proposal – the team consisted of those two [David and Valerie], Curt Barrett [NOAA NWS, Commerce Program Manager], David McKinnie [NOS program manager], and me [Robert Jubach, NOAA NWS program coordinator]” (R. Jubach, personal communication, December 2003). The information from the USAID assessment trips was factored in to the DOC proposal creation process when possible, but the true value of those trips was mainly to fine tune work plans (R. Jubach, personal communication, December 2003). Outside of the NWS and SG reconnaissance trips, the proposal process began before much of the ground truthing was accomplished.

During proposal creation, the small team was given a target budget from USAID and worked with the other offices to ensure a consistent program, as well as one that satisfied the needs of USAID. Ultimately, a “DOC proposal was developed and sent to

USAID/HQ [headquarters] (not the missions)” (R. Jubach, personal communication, December 2003). Before implementation, the DOC proposal also had to be reviewed and approved by Congress. The missions were included in the USAID/HQ proposal review. “Once the proposal was approved, we set about developing work plans for each country and getting those approved by the country missions” (R. Jubach, personal communication, December 2003).

Purpose and Goals of the U.S. DOC Program

The plan creation was made up of numerous programs, all working towards accomplishing the overall DOC/NOAA hurricane reconstruction program goals and objectives:

Consistent with the Commerce Department’s environmental and economic mandates, DOC proposes to assist post-Mitch reconstruction in Central America by (1) improving and developing much-needed hydrometeorological forecasting and early warning systems; (2) protecting key ecosystems (in particular those that can mitigate the effects of hurricanes and other severe natural events) and promoting sustainable uses of natural resources; (3) helping Central Americans build stronger, more disaster-resilient housing; and (4) encouraging economic revitalization. (United States Agency for International Development, 1999b, p. 9)

As described in more detail in Annex A of the IAA, the Program

....supports the LAC [Latin America and the Caribbean] Regional Special Objective for Hurricane Reconstruction and consists of assistance for planning and implementing the environmental management and disaster mitigation components of the U.S. Government (USG) reconstruction effort by providing (1)

critically-needed base infrastructure elements, (2) hydrometeorological forecast and early warning systems, (3) disaster preparedness and response systems, (4) assistance building regional capacity for coastal hazards mitigation, (5) by encouraging disaster-resilient economic revitalization, and (6) by supporting sound regional watershed management. It is anticipated that DOC-provided data, training, and equipment will contribute to forecast and early warning systems, reconstruction planning, the refinement of Central American building and land use practices, the proper management of natural resources, and the protection of key ecosystems. (United States Agency for International Development, 1999b, p. 3)

The NWS program was developed as one that

...made sense as a reconstruction-type program that promoted sound infrastructure reconstruction and development of new sustainable programs to help with early warnings and disaster management. Science was definitely part of it as we promoted ‘appropriate technologies’. Policy was involved as USAID requested that we install some programs in Costa Rica, as well as the four countries affected by the hurricane. NOAA therefore designed and implemented programs in Costa Rica that benefited early warning systems in that country, as well as in the region as a whole. (R. Jubach, personal communication, December 2003)

From the NOAA SG point of view, the project goals for their portion of funding, set by NOAA, SG, USAID, and local constituents was “to establish a marine outreach project to change attitudes and behaviors related to the use and development of coastal

and marine resources at the same time that economic opportunities were promoted (especially in the aquaculture industry)” (R. Chaparro, personal communication, December 3, 2003). This would be accomplished by placing extension agents in country for two years, while utilizing U.S. SG extension agents to backstop (J. Murray, personal communication, December 19, 2003).

InterAgency Agreement

Once the DOC proposal was approved by USAID and Congress, the Foreign Assistance Act of 1961, 632 (b) [22 U.S.C. § 2392 (b)] agreement between USAID and DOC/NOAA, known here as an interagency agreement (IAA), needed to be developed and approved.

The IAA required General Counsel review and approval at both USAID and DOC/NOAA. The total budget of \$17.1 million was provided in two separate tranches [installments]— about 50% each. I remember writing a mini-proposal just highlighting what would be done for the first tranche. This required a careful approach since getting the second tranche of funds was not guaranteed so specific activities needed to be completed. The second tranche followed mostly the same path, highlighting what was to be added to the first tranche then revision and approval of the IAA – though this went much quicker. (R. Jubach, personal communication, December 2003)

This IAA was executed on September 17, 1999 to obligate the funds and transfer the authority to execute the expenditures of funds internationally from USAID and DOC (United States Agency for International Development, 1999b). The IAA between

USAID and DOC/NOAA contained the U.S. Department of Commerce's "Implementation Plan for Reconstruction Work in Central America" as Annex A.

For anyone embarking on the implementation of international disaster funding from USAID, the first action should be locating and then reading any previous agreements. However, this paper trail may be difficult, if not impossible, to trace as there is no filing system available to NOAA as a whole. The IAA and annex A also covers many details including: implementation of funding, NOAA managing structure, and the special terms and conditions to use in contracts, grants, and other agency transfers.

Involved USG Agencies Discuss Concerted Honduran Effort

As funds were being transferred to other Agencies, the USAID missions in Nicaragua and Honduras were attempting to coordinate all USG activities for coordination and support. Thus the Honduran mission held an all-USG Agency Conference in Tegucigalpa, Honduras (Table 12) on November 16-18, 1999, for USAID and the thirteen other USG agencies to discuss their Honduran work plans. This conference was "to discuss implementing hurricane reconstruction activities with supplemental funds in Honduras to assure coordination and necessary administrative support" (Katz, 2002).

US Ambassador to Honduras, Frank Almaguer, spoke about all agencies working together for "one program approach, one set of objectives sent to Washington" (United States Agency for International Development, 1999a). Results were what mattered to Congress.

When Elena Brinemann goes before the Senate appropriations committee, they will not be asking if the weather is nice in Tegucigalpa. What they will ask is

how many houses have been rebuilt, how many schools have been rebuilt. There are specific objectives in seven results packages. That is how we measure. You will be given latitude to achieve. But achieving results is the objective. We are expected to win by achieving results. I will be expected to know why not.

(United States Agency for International Development, 1999a)

Mr. Almaguer was quoted “as being content with management of funds” (United States Agency for International Development, 1999a) in Honduras, due to the procedures in place to control spending from the beginning.

Implementation

The flow of DOC/NOAA funds began with the signed emergency supplemental bill on May 21, 1999, then moved through the plan creation and approval by USAID and Congress, creation and implementation of an IAA, and finally distribution to offices in NOAA, International Trade Administration (ITA), and National Institute of Standards and Technology (NIST) (Table 12). The NOAA IAA funds were distributed through “the reimbursable project accounting process to the line offices” (R. Jubach, personal communication, December 2003). ITA and NIST received their funds through other agreements with NOAA. “Once the money was in each LO or bureaus account, it was allocated according to the implementation plan. NWS used mostly contracts and some FTE [full-time equivalent] support, while NOS used mostly grants and FTEs but with a contract to the Organization of American States” (R. Jubach, personal communication, December 2003). NOAA Sea Grant utilized a cooperative agreement. ITA and NIST used FTEs.

Due to the short amount of time (less than 26 months) to obligate and execute funds, contracts and grants needed to be processed immediately avoiding any possible delays caused by incorrect recipient paperwork or workload of the contract and grants office. The division of the budgets by problem area and country can be viewed in Table 3. Besides the USAID IAA funds, DOC/NOAA executed \$1,280,000 in an “agreement with the USAID Mission in Nicaragua for the Nicaragua Small Shrimp Producer Assistance Program” (U.S. Department of Commerce, 2002, p. 14). This was accomplished through an award to Michigan Sea Grant. Some project costs were incurred before the IAA was signed. For example USAID assessment trips with USG agencies could be recouped.

I can only speak for NWS but the project received \$100k in ‘seed’ money to get started before the IAA and that was recouped via a cost adjustment once the IAA was signed and money was available. The seed money was used for writing implementation plans and developing the programs for each country – up front stuff. (R. Jubach, personal communication, December 2003)

With a short time frame, NWS “made arrangements to have a special ‘Mitch contracting team’ available” (R. Jubach, personal communication, December 2003). This seems to be a best management practice for obligating funds for expenditure. For the NWS, about 95% of the almost \$8 million was obligated through contracts and the other 5% went to support in house work. The steps and time involved for the NWS contracts were (R. Jubach, personal communication, December 2003):

- Selection of the contractor (s). After deciding to use firms with existing, approved NOAA contracts in order to facilitate the contracting process, a

public (Commerce Business Daily) notice was sent out soliciting names of interested contractors. Interviews were held and a core of four were selected. This took approximately 6-8 weeks.

- NWS writes a statement of work (SOW) for each contractor for the first tranche (installment) of funds and proposals for each SOW were solicited, reviewed, and task orders were issued. This took approximately 4-6 weeks.

Already approved NOAA contractors were used because this shortened the obligation time period from a possible 6 months to a 10-12 week process (R. Jubach, personal communication, December 2003). Thus, for the NWS, the process of awarding contracts was streamlined due to the arrangement of having a special contracting team available and utilizing already approved contractors. When asked about streamlining the contracting mechanism, Mr. R. Jubach (personal communication, December 2003) thought the only way time could have been reduced would have been reducing the time taken to select the contractors. “But with the amount of money involved (about \$8 million) and the need to be sure we could get the work done in (now) less than two years we had to be sure and careful who we selected.”

NOAA SG was not as fortunate in a smooth and quick award of funding to UPRSGCP to conduct the proposed activities (derived from the three million dollar, three year concept paper). The timeline for awarding a total of \$450,000 to UPRSGCP is as follows (NOAA cooperative agreement award NA07RG0083):

June 29, 1999	Application submitted by UPRSGCP
---------------	----------------------------------

December 20, 1999	After DOC/NOAA implementation plan finalized and IAA signed, application resubmitted with appropriate budgets and funding period by UPRSGCP
June 9, 2000	NOAA awarded first year of funding to UPRSGCP (\$380,000)
January 16, 2001	Extension to complete work on the project granted by NOAA
September 25, 2001	NOAA awarded second year of funding to UPRSGCP (\$70,000)
March 31, 2002	Unused funding returned to the U.S. Treasury

UPRSGCP is a University and not a federal entity; USAID desired a federal entity to be accountable for the funds, thus the NOAA SG office needed to be substantially involved (J. Murray, personal communication, December 19, 2003). Therefore a substantial involvement clause was added to the UPRSGCP award's terms. Through a normal NOAA appropriation cycle, the process is very clear and prior planning has been performed. This emergency supplemental appropriation for disaster funding required specific and immediate action be taken within thirty months. That is, funding needed to be obligated almost immediately and expenditures completed by December 31, 2001. Also, an extensive review and analysis of the application by the Grants Management Division and DOC Office of General Counsel was needed. The appropriate statutory authority had not been given, thus DOC General Counsel needed to do extensive research to find the appropriate authorization for SG to conduct international activities.

The delay in obtaining the funding and the application review within both the NOAA SG office and Grants Management Division created a loss of momentum and good will. Discussions with Universities in Nicaragua and Honduras, begun months

earlier, had been placed on hold (J. Murray, personal communication, December 19, 2003).

As this was NOAA's first experience in such reconstruction efforts, employees involved were facing uncharted waters. For example, it was not clear that USAID had transferred their USAID authority to spend money internationally on grants, contracts, and cooperative agreements to NOAA in the IAA.

In summary, most of the non-personnel funds spent were through contracts because the principal purpose of this instrument is to "acquire (by purchase, lease, or barter) property or services for direct benefit or use of the U.S. government." A few grants were used because they dealt with carrying out the "public purpose of support or stimulation authorized by a law of the United States instead of acquiring (by purchase, lease, or barter) property or services for the direct benefit or use of the United States Government." And at least one cooperative agreement was used between NOAA SG and the UPRSGCP because "substantial involvement is [was] expected between the executive agency and the...other recipient." 31 U.S.C. § 6305.

Oversight & Management of the DOC/NOAA Reconstruction Efforts

Management and oversight of all funding decisions were made by a federal employee, otherwise known as a Full-Time Equivalent (FTE), "a civilian employee in the Executive Branch who works one work year or 2,080 non-overtime hours" (Office of Management and Budget, 2003, p. 19). The following information comes from the IAA, annex A (United States Agency for International Development, 1999b).

There was top management-level oversight of all the Department's activities at the DOC and NOAA leadership level, via the two program directors (David Festa, DOC

Senior Advisor to the Secretary of Commerce and Valerie Blatnik-Siegel, NOAA liaison with DOC). This level of oversight was to allow someone to make the difficult funding decisions. The two directed DOC's work in the region, represented the Department at administration and other top management-level meetings, and made all final budgetary and other decisions that significantly and substantially affected the nature of DOC's proposed work. Both of these directors were political appointees. After the November 2000 election, there was a change in the political landscape. Therefore neither of these two program directors were able to see the DOC/NOAA reconstruction efforts through the final year and on to completion in March 2002.

The next level of management was the overall program manager (Curt Barrett, NWS). He had direct responsibility for coordinating all of the Department's work; reporting to Program Directors'; overseeing DOC's technical and administrative activities; assisting Program Directors as a point person for interactions with other U.S. government agencies, USAID, donor and international organizations, and local and national officials of the affected countries; keeping USAID missions apprised of progress; and relating problems or concerns to the missions as needed.

An Agency Program Manager was assigned from each bureau involved within DOC. For NOAA this person was Curt Barrett. The Agency program manager reported to and worked directly with the overall Program Manager. They closely monitored all administrative and budgetary requirements of their agency's activities, including reporting and other requirements of DOC's Interagency Agreement with USAID. They also provided timely updates to the overall Program Manager of country and regional

work plans and information regarding their agency's activities for inclusion in DOC's quarterly progress report to USAID, as required by the IAA.

Other personnel involved in the reconstruction activities were government FTEs and/or contractors who performed the tasks outlined in Section IV of annex A of the IAA (United States Agency for International Development, 1999b). Another group was the procurement personnel required to process and award the contracts and grants. Finally DOC/NOAA managers were needed to provide all technical and administrative oversight and direction for work performed by contractors and grantees.

Coordination Meetings and Responsibilities

With an activity the size of the reconstruction effort, continual communication and coordination between many entities was necessary. The following information describes these coordination efforts (United States Agency for International Development, 1999b).

There were DOC/NOAA liaisons with the World Bank's Disaster Management Team and the USAID's Water Team to assist in coordinating activities that involved DOC. Regular discussions about water resource management and flood forecasting activities with the Inter-American Development Bank were also undertaken (United States Agency for International Development, 1999b).

The DOC/NOAA program managers were regularly coordinating proposed and ongoing activities with the respective USAID missions, USAID's Regional Program, USAID's Office of Foreign Disaster Assistance, and other offices within USAID. Activities were also coordinated with other U.S. government agencies directly and through USAID (United States Agency for International Development, 1999b).

An informal interagency group, the International Water Resources Management Group, was initiated by DOC/NOAA. This group met at least quarterly to discuss water-related projects. The members included representatives from DOC/NOAA, United States Geological Survey (USGS), Department of Defense/Army Corps of Engineers (DOD/ACOE), Federal Emergency Management Agency (FEMA), Tennessee Valley Authority (TVA), and Department of Interior/Bureau of Reclamation (DOI/BOR). When appropriate, representatives from USAID and donor organizations also attended to discuss water related projects including flood forecasting and mitigation, “to provide a forum for the exchange of information on Central American activities” (United States Agency for International Development, 1999b, p. 42).

Activities were also linked and coordinated with international organizations and other USG agencies: United Nations’ World Meteorological Organization (WMO), Organization of American States (OAS), USGS, FEMA, and U.S. Army Corps of Engineers (USACE) (United States Agency for International Development, 1999b).

Exit Strategy

Due to the need to have all funds originally expended by December 31, 2001, (later extended to March 2002) creation of a comprehensive NOAA exit strategy was not possible. The survey participant responses varied from highly successful to partially successful. Robert Jubach stated:

USAID dictated what was required for closeout – as far as reporting, equipment turnover, etc. For NWS I had a closeout meeting in each country with the counterparts and USAID to discuss what we did, why we did what we did, what we hoped they would do with what we provided; sustainability issues, follow on

needs and requirements and an overall approach of logical next steps to continue to improve...most all our systems still work and most agencies we dealt with are now stronger and more focused than ever before (R. Jubach, personal communication, December 2003).

Another summed their exit strategy as the need to finish the work, deliver the training and reports, and have a close-out meeting. But Mary Baker (NOAA Oceans Service) mentioned that the momentum was lost at the end of the project (M. Baker, personal communication, January 2004). The Florida Sea Grant Director, who was involved through the Michigan Sea Grant project, thought “the project would have been more successful if we had some additional funding for at least one more year, and preferably two. This would have allowed the shrimp growing facility to be built and tested in year one, and then operated under more realistic conditions in years two and three” (J. Cato, personal communication, December 5, 2003).

As for the NOAA SG activities, the project was superficially successful, but due to the delays, the extension program did not become what all hoped (J. Murray, personal communication, December 19, 2003). NOAA SG knew this project had to be sustained to realize the true value of the extension programs, but no one “had the time or expertise to understand the entire donor culture” to identify continued program funding (J. Murray, personal communication, December 19, 2003).

CHAPTER V

CONCLUSIONS

Hurricane Mitch was a Category 5 hurricane that churned over Central America from October 29 - November 2, 1998, dropping great amounts of rain (Guiney & Lawrence, 1999). President Bill Clinton called for an all-cabinet response for Central American reconstruction needs (United States Agency for International Development, 2003e). Then in 2000 with reconstruction efforts underway in Central America, a transfer of political power occurred, which left many of the NOAA Hurricane Mitch reconstruction effort top positions empty (Figure 1). Thus, before the rest of the NOAA Hurricane Mitch reconstruction team, who have now returned to their original jobs, retire or change positions, a framework for funding disaster relief efforts through NOAA needs to be created.

Question

Data collected in this dissertation shows NOAA did follow standard protocols (laws, policies, and processes) in allocating, obligating, and expending the Hurricane Mitch reconstruction funding from USAID. As a result of following the protocols, though, an inherent time lag was created between the disaster and the expenditure of funds in country. Therefore, in the future, NOAA can enhance its impact in international natural disaster reconstruction efforts through improving NOAA's internal processes (planning, operation, implementation, and evaluation). Even though the standard protocols were utilized, there is an opportunity for NOAA to be proactive in decreasing the time taken at each step and to reassess the policies and processes. Thus, with the expectation of the punctuated equilibrium theory to hold true, for NOAA to be a partner

with USAID in future international natural disaster reconstruction efforts, the following section proposes a number of possible process and policy changes to assist NOAA in improving the current protocols.

Proposed Process and Policy Changes

As peer-reviewed frameworks for implementation of Federal government appropriated funds at the international level were not uncovered, this analysis was undertaken to assist NOAA in the next natural disaster. Based on the theory of punctuated equilibrium, NOAA's mission, the will of Congress, and nature, NOAA's involvement in reconstruction efforts could occur at any time. Through implementation of the proposed changes and preparation now, NOAA will be prepared to meet the challenge when inevitably the next event arises. The increased effectiveness of the system would save employee time in recreating a process, thus allowing the employee more time to complete his/her normal work. This increase efficiency could also mean reconstruction activities in the effected country could be started sooner.

What Should NOAA Do Differently Next Time?

NOAA should create a standing international natural disaster coordination committee. This committee should be proactive, reactive, and continually reassessing approaches taken so NOAA can be increasingly better prepared to smoothly handle any natural disaster situation with which NOAA is involved. Once created and operating, this committee would meet approximately twice a year to discuss future international natural disasters and NOAA's response framework. Meetings should coincide with hurricane season while incorporating other natural disasters in the discussions. On this schedule the committee would meet in May/June to reassess approaches in preparation for the

hurricane season. Even if a disaster struck yielding committee meetings, the second yearly committee meeting should be in the November/December timeframe, coinciding with the end of hurricane season and another chance to reassess approaches. When a disaster strikes and DOC/NOAA is involved, the committee would meet as needed.

The committee would be comprised of two representatives from each LO (one from LO and one from the international office of each LO; or as appropriate) and one to two representatives each from DOC General Counsel's Office (General Law Division and Federal Assistance Law Division), NOAA's Acquisition and Grants Office (both a contract and grant specialist), NOAA headquarters, NOAA Legislative Affairs, and DOC headquarters. This list comprises representatives from all offices involved in the Hurricane Mitch reconstruction activities in NOAA. Two representatives are needed so that at least one could be present at each meeting as a representatives other daily duties may conflict with a scheduled meeting. Other possible participants would be one to two representatives from each of DOC's bureaus involved in international natural disaster reconstruction activities, and a liaison from USAID.

With a committee this size, leadership may be non-existent as every member expects another to lead. Thus, from this larger committee, a smaller steering committee should be selected to set the agenda, lead the meetings, and direct the continual reassessments of process. This small committee should be selected yearly, as committee membership and time commitments will change.

The major purpose and responsibility of this coordination committee would be to improve upon the funding framework by constantly reassessing approaches and methodology, as well as implementing future recommendations applicable to disaster

relief response. The committee would also educate and prepare those people directly involved in implementing the next NOAA international natural disaster reconstruction effort.

Once the committee is created, the funding framework should be discussed and formalized. Future reconstruction allocations and expenditures of funds then will not have to rely on institutional knowledge, which may not be available. Anyone would be able to utilize the framework as all involved participants would have a routing map to quickly complete the necessary funding steps. With this framework available for everyone's use, funding would be allocated and awarded more expediently, thus allowing projects to be implemented in a timely manner.

Additionally the steering committee would have appropriate personnel brief the entire committee on all aspects of the funding process before, or at the very least, immediately upon involvement in an international natural disaster reconstruction effort. For example, these briefings could include the DOC General Counsel's Office discussing the laws governing use of money, as well as, contract and grant lawyers and specialists discussing contract and grant laws and the documentation needed. Briefings would also be composed of program managers and officers describing their responsibilities and needs. With this type of preparedness involving shared information and procedural awareness, the committee's implementation in a similar effort would be more streamlined and efficient.

The coordination committee should also reassess the composition of the team created to lead the reconstruction activities. One of the program directors of this team

should be a career civil servant. This alleviates the risk of lost time, knowledge, and momentum if a political change in the government occurs during a reconstruction effort.

The coordination committee should investigate avenues to fund reconnaissance trips immediately in affected locations, based on NOAA's mission, that NOAA will likely be involved. They also need to investigate ways for the funds to be reimbursed if funds are appropriated at a later date. If this would require authorizing language (law), NOAA should work with the Office of Management and Budget and Congress to pursue a legislative solution.

A coordination committee, that functions as described, would allow for a better understanding of the processes and policies governing NOAA in a reconstruction effort. This transparency would enable all NOAA entities a voice in the plan creation – creating one NOAA voice and plan. Minimized could be the turf battles and misunderstandings that plague all organizations.

As an additional tool, a framework for NOAA participation in a natural disaster was created (Table 14). This framework allows for a step-by-step comprehensive approach to international natural disaster reconstruction efforts that the committee can use to begin reassessments and preparations for the future. Many of these items can occur simultaneously.

Table 14

Framework for NOAA Participation in an International Natural Disaster. All days Are Working Days.

Time frame	Activity
International natural disaster occurs	
5-10 days	Disaster declared
5 days after disaster declaration	International natural disaster coordination committee convened to discuss NOAA involvement
5-10 days after first committee meeting	Coordination committee appoints team to lead effort disaster involvement effort
Continual	NOAA Legislative Affairs monitors Congressional action

Table 14 (continued).

5-10 days after disaster declaration	USAID contacted for status of specific disaster related activities
As team is formed	OMB contacted about Executive branch stance on forthcoming aid
10-15 days after team formed	USG partners are contacted
6 months	Emergency Supplemental bill discussed and passed
Following activities are occurring as the emergency supplemental bill is discussed	
	Reconnaissance trips arranged
	If funding is available, DOC General Law Division discusses legal issues of IAA with funding Agency's law division
	DOC General Law Division: Appropriate authorizing legislation is available
	DOC General Law Division briefs coordination committee on implications of international laws and processes
	Program Manager assigned as NOAA contact for IAA
	Program Manager update coordination committee and others involved frequently
	Implementation plan is created with input from all parts of NOAA
	Discuss implementation plan with USAID and partners during creation
	NOAA Acquisitions and Grants Office (AGO) prepares "team" to expedite awards
	AGO briefs coordination committee and others involved on procedures to follow for awarding both contracts and grants
Emergency supplemental bill passes or another source of funding is designated (following days are cumulative)	
20 days	IAA finalized and signed
10 days	Funds distributed according to implementation plan
30 days	Awards prepared by Program Office
30 days	Awards prepared by AGO and awarded
Projects begin	
Biweekly	Coordination committee meets to review process thus far, and discuss next steps
Continual	Oversight of projects at all levels
Quarterly	Reports prepared
Quarterly	Reports submitted
Biweekly	Continue coordination meetings with USAID and partners (both USG and others)
120 days prior to project end	Prepare exit strategy
60 days prior to project end	Implement exit strategy
Up to 60 days after project completion	Prepare final reports
60 days after project completion	Submit final reports
80 days after project completion (20 days after final reports submitted)	Coordination committee discuss entire process, reassessing policies and procedures
Prepare for the next natural disaster	

Other scenarios for organizing a framework within NOAA can be concluded from this study, but given the current budget climate and the Congressional oversight of NOAA's funding, these scenarios are less likely to be implemented. For the completeness of this dissertation, two other scenarios are briefly described. The first is creation of a NOAA headquarters office, which would coordinate and oversee all international and reconstruction efforts. This, though, would be unrealistic as creating such an office would consume scarce resources and may not be utilized for years if an international natural disaster does not occur in which NOAA is involved. Also, power would be given to one office, possibly alienating other parts of NOAA who will not feel as if all are equal partners in decisions made and activities undertaken. The second scenario would be to place the coordination of activities within the NOAA headquarters International office (which already exists). Once again, though, resources (dollars and people) to staff this task would be needed and the final decision making would be granted to one office of NOAA.

In conclusion, the creation of an international natural disaster coordination committee would consume the least amount of new resources, as the cost would be spread across the agency in terms of the time each employee spends. In the absence of a natural disaster, little cost would be incurred. The coordination committee would also be transparent, allowing all parts of NOAA to have an equal voice.

Utility in the Future

As USAID aptly states, "The massive and successful response to these disasters was as unparalleled as the devastation itself" (United States Agency for International Development, 2003e, p. 15). Most survey respondents agreed, as they felt the goals had

been met and the affected countries were in a better position to move forward and continue to improve. The USAID missions developed new strategic plans by taking both the effects of Hurricane Mitch and reconstruction into the plans to guide the USAID post-reconstruction era programs. These strategies looked prospectively toward how to spur further transformation that would build the social, political, economic, and institutional capacity to mitigate the impacts of future natural disasters (J. Lombardo, personal communication, December 17, 2003). For the NWS activities “most all the systems still work and most agencies (in affected countries) we dealt with are now stronger and more focused than ever before” (R. Jubach, personal communication, December 2003).

This analysis and framework creation supports USAID’s recommendation that start up time needs to be reduced, so partners have more time to implement the reconstruction projects (United States Agency for International Development, 2003e).

USAID stated it needed to develop

...measures to cut the time between the disaster and the startup of major reconstruction programs. This entails creating a staffing ‘surge capacity’ that is supported by appropriate waivers and special administrative provisions to cut the design and procurement periods for contractors and grantees. The interval required before work could begin at disaster sites meant that most partners had only 18-24 months to complete their projects, though 30 months was the target for spending \$621 million in supplemental funding. With an additional six months and the same funding, most partners believe they could have worked even more effectively. (United States Agency for International Development, 2003e, pp. 14-15)

As numerous theories and models have been created over the decades to explain the changes that occur in national policy settings and in the Federal Government spending methods, punctuated equilibrium theory best explains the stasis and periods of dramatic change of the Federal Government to international natural disasters because after Hurricane Mitch new thinking was implemented (Jones et al., 1998). When Hurricane Mitch hit and killed 8-12,000 people, the crisis created a dramatic change in thinking in who was involved in international reconstruction efforts (Jarrell et al., 2001). This change created a need to implement such a comprehensive funding endeavor. The Executive branch of government was to implement this funding using the Principles of Federal Appropriations Law and other government policies. Following the theory of punctuated equilibrium then, USAID with other federal agencies will continue to implement together any future international reconstruction efforts. Punctuations, an important part of policymaking, are usually surrounded by periods of stasis (Baumgartner & Jones, 1993; Carmines & Stimson, 1989; Dodd, 1994; Jones, 1994; Jones et al., 1996; Kelly, 1994; Jones et al., 1998). Thus, as Hurricane Mitch caused a period of dramatic change, what should follow is a period of relative stasis in which currently held thinking is maintained. In other words, the boundaries have been reset such that when x happens, y should be the outcome. NOAA was one of 13 other federal agencies involved in international reconstruction efforts as determined by the President of the U.S. and the emergency supplemental spending bill following Hurricane Mitch. The dramatic change in policy making was to include NOAA (and other federal agencies) at the appropriation level. Previously, NOAA had been involved since the 1970's on a small scale with USAID and international reconstruction efforts. Therefore NOAA needs to be prepared

to allocate, obligate, and expend reconstruction funding following the next international natural disaster. Thus, even if the theory does not hold entirely, past performance and history of NOAA in assisting USAID internationally in NOAA mission related-activities, will continue to keep NOAA involved at some level with USAID in international reconstruction efforts.

Improvement is always possible. This dissertation attempted to document a previous international natural disaster reconstruction effort using Hurricane Mitch and to create a framework to assist those involved in the next disaster. The information contained herein has collected the documentation of the Hurricane Mitch experience in one location and clarified possible misconceptions of the laws and policies. Each participant can now understand the entire process and each position's responsibility. Many of the current laws and procedures are already adequate, streamlined, and were utilized during the Hurricane Mitch process.

With this published framework in place, all individuals involved would then be better equipped to complete designated responsibilities in the shortest time possible, with the least misunderstandings, while alerting the next person in the process as to what to expect within the time frame allotted.

NOAA can become a leader among other USG agencies receiving international natural disaster funding via implementation of the framework through the NOAA international natural disaster coordination committee. Other USG agencies could then use the NOAA framework simply by inserting or changing the appropriate information to meet the missions and policies of the USG agency.

The process through USAID of funding international reconstruction response efforts through another agency (NOAA) can be streamlined following an international natural disaster. The findings and mechanism created here could be utilized by NOAA as well as numerous other agencies.

As was the goal of this comprehensive effort, not simply to replace what existed before, but to “build back better,” so should be the goal of NOAA – to build a better system in the aftermath of the Hurricane Mitch reconstruction efforts. Only through constant reassessment of approaches can NOAA be prepared for the next international natural disaster.

APPENDIX A

Survey Instrument

*Note: Each person may not be asked all questions. Depending on the agency involved during the survey/interview, (agency) will be replaced with:

- a. United States Agency for International Development
- b. NOAA's National Weather Service
- c. DOC General Counsel
- d. NOAA Sea Grant
- e. Puerto Rico Sea Grant
- f. Florida Sea Grant
- g. NOAA Oceans Service
- h. United States General Accounting Office
- i. Other individuals identified through interviews & surveys conducted

- 1) Did (agency) undertake a reconnaissance study after Hurricane Mitch in country to assess damages?
 - a. If yes, when in relation to the disaster (Oct. 1998) did this occur?
 - b. Who was on the team?
 - c. How/why was each individual selected for the team?
 - d. Where did the team travel? What countries?
 - e. Were "in country" individuals for countries visited involved ? If so, who and why?
 - f. What was the total cost of the reconnaissance study?
 - g. How was it funded?
 - i. USAID
 - ii. (Agency)
 - iii. Rapid response funds
 - iv. Others
- 2) What legislation allows (agency) to operate in disaster situations?
- 3) Is there information on how the process of appropriation to allocation (grants) was undertaken by (agency)? If yes, where is it documented?
- 4) What did the appropriating legislation mandate?
- 5) If answer yes to any of the following questions, please specify. Was there clear direction from Congress regarding:
 - a. Method in which money was to be spent?
 - b. How fast the money/activities were to be delivered to country affected?
 - c. Who should deliver the money/activities?
 - d. What effect the money/activities should have?
 - e. What the outcome should be?

- 6) How did (agency) go about preparing to implement the appropriating legislation?
- 7) What was the process (agency) undertook to create a plan of work and spending plan?
- 8) What was your role, as the representative for (agency), in this plan creation?
- 9) Who had to approve (agency's) final disaster spending plan?
- 10) What funding mechanisms did (agency) use to implement the spending plan?
 - a. Request for Funding Notification (FRN)
 - b. Non-competitive Grants
 - c. Contracts
 - d. In house work
 - e. Direct payment
- 11) What was the time required for processing the transfer of funds from (agency) to the next agency/office?
- 12) What were the steps necessary for processing this transfer?
- 13) Do you have any suggestions as to how to streamline this process (shorten time needed).
- 14) What are the steps necessary (who needs to sign off) to complete a funding action? Please list each step and time involved.
- 15) How long did it take to receive the necessary paperwork once the decisions were made on funding the final recipient?
- 16) How long did it take to process the paperwork through (agency) and grant the funding to the final recipient?
- 17) Funding Implementation
 - a. Time required to implement the NOAA funded SG projects in the Gulf of Fonseca?
 - b. Who were the involved participants?
 - c. What were the procedures necessary to implement the NOAA SG projects?
 - d. What were the participants' roles?
- 18) (Agency) project goals
 - a. What were the project goals?
 - b. Who set these goals?
 - c. On what were the goals based: policy, science, or good will?
 - d. How did the project implementation achieve the goals outlined?

19) Exit Strategy

- a. What was the exit strategy of (agency)?
- b. How did this strategy address and fulfill the goals as related to (agency)?

20) Is there an institutional willingness within (agency) to become involved in international natural disasters?

21) Finally, would you be willing to talk/email with me to discuss this survey further?

APPENDIX B

NOAA Permission to Interview Letter



UNITED STATES DEPARTMENT OF COMMERCE
The Under Secretary of Commerce
for Oceans and Atmosphere
Washington, D.C. 20230

JUN 20 2003

Human Subjects Review Committee
Office of Research and Sponsored Programs
University of Southern Mississippi
Box 5157
Hattiesburg, Mississippi 39406-5157

Dear Committee Members:

This letter is to inform the Human Subjects Review Committee of the University of Southern Mississippi that the National Oceanic and Atmospheric Administration (NOAA) is aware of Nikola M. Garber's dissertation research. She will be creating a framework for funding disaster relief efforts in Central America after a major natural disaster. The resulting framework may be used by NOAA in future disaster relief efforts.

NOAA gives permission to Ms. Garber to interview NOAA employees involved in the Hurricane Mitch relief efforts, and those who may be involved in future relief efforts. She may use data collected from these interviews in her dissertation and in possible publications resulting from her work.

Sincerely,

A handwritten signature in cursive script, reading "Conrad C. Lautenbacher, Jr.".

Conrad C. Lautenbacher, Jr.
Vice Admiral, U.S. Navy (Ret.)
Under Secretary of Commerce for
Oceans and Atmosphere



Printed on Recycled Paper

THE ADMINISTRATOR



APPENDIX C

Clearance from University of Southern Mississippi's Institutional Review Board



THE UNIVERSITY OF SOUTHERN MISSISSIPPI

TO: Nikola Garber
223 Constitution Ave., NE
Washington, DC 20002

FROM: Lawrence A. Hosman, Ph.D.
HSPRC Chair

PROTOCOL NUMBER: 23092302

PROJECT TITLE: A Framework for Funding Disaster Relief Efforts in Central
America After a Major Natural Disaster

Enclosed is The University of Southern Mississippi Human Subjects Protection
Review Committee Notice of Committee Action taken on the above referenced
project proposal. If I can be of further assistance, contact me at (601) 266-4279,
FAX at (601) 266-4275, or you can e-mail me at Lawrence.Hosman@usm.edu.
Good luck with your research.

INSTITUTIONAL REVIEW BOARD
HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
Box 5147 • Hattiesburg, MS • 39406-5147
Phone (601) 266-6820

Hattiesburg • Long Beach • Ocean Springs • Biloxi • John C. Stennis Space Center



THE UNIVERSITY OF SOUTHERN MISSISSIPPI

HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **23092302**

PROJECT TITLE: **A Framework for Funding Disaster Relief Efforts in Central America After a Major Natural Disaster**

PROPOSED PROJECT DATES: **07/15/03 to 05/01/04**

PROJECT TYPE: **Dissertation or Thesis**

PRINCIPAL INVESTIGATORS: **Nikola M. Garber**

COLLEGE/DIVISION: **College of Business & Economic Development**

DEPARTMENT: **Economic Development**

FUNDING AGENCY: **N/A**

HSPRC COMMITTEE ACTION: **Exempt Approval**

PERIOD OF APPROVAL: **10/16/03 to 10/15/04**

Lawrence A. Hosman
Lawrence A. Hosman, Ph.D.
HSPRC Chair

10-16-03

Date

INSTITUTIONAL REVIEW BOARD
HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
Box 5147 • Hattiesburg, MS • 39406-5147
Phone (601) 266-6820

Hattiesburg • Long Beach • Ocean Springs • Biloxi • John C. Stennis Space Center

HUMAN SUBJECTS REVIEW FORM
UNIVERSITY OF SOUTHERN MISSISSIPPI
(Submit this form in duplicate)

Protocol # 23092302
(office use only)

Name NIKOLA M. GARBER Phone 3017132431

Mailing Address 223 Constitution Ave NE, WASHINGTON, DC 20002
(address to receive information regarding this application)

College/Division Business & Economic Development Dept Economic Development

Department Box # 5051 Phone 6012666519

Proposed Project Dates: From July 15, 2003 To May 1, 2004
(specific month, day and year of the beginning and ending dates of full project, not just data collection)

Title A framework for funding disaster relief efforts in Central America after a major natural disaster

Funding Agencies or Research Sponsors N/A

Grant Number (when applicable) N/A

☐ New Project

☒ Dissertation or Thesis

☐ Renewal or Continuation: Protocol # _____

☐ Change in Previously Approved Project: Protocol # _____

Nikola M. Garber 6/26/03
Principal Investigator Date

C. H. J. 7/15/03
Advisor Date

C. H. J. 7/15/03
Department Chair Date

RECOMMENDATION OF HSPRC MEMBER

☒ Category I, Exempt under Subpart A, Section 46.101 (b) (2), 45CFR46.

☐ Category II, Expedited Review, Subpart A, Section 46.110 and Subparagraph ().

☐ Category III, Full Committee Review. The applicant has been requested to provide the Office of Research and Sponsored Programs (ORSP) with twelve (12) additional copies of the application.

Annita 6-14-03
HSPRC College/Division Member Date

Laurence A. Honan 10-14-03
HSPRC Chair Date

APPENDIX D

Conflict of Interest Statement

The University of Southern Mississippi
Consent form
Authorization to Participate in Research Project
Conducted by Nikola M. Garber

Consent is hereby given to participate in the study titled:

A Framework for funding disaster relief efforts in Central America after a major natural disaster

1. Purpose:

The purpose of this investigation is to create a clear and available mechanism or framework for funding disaster relief efforts in Central America after a major natural disaster via the National Oceanic and Atmospheric Administration (NOAA). The resulting framework may be used by NOAA in future disaster relief efforts.

2. Description of Study:

A case study of the procedures followed in processing the funding allocated from USAID for Hurricane Mitch will be undertaken via archival research and interviews. Subjects may include individuals from Congress, Office of Management and Budget, USAID, NOAA Hurricane Mitch project coordinators, NOAA General Counsel (NOAA GC), NOAA Sea Grant, Puerto Rico Sea Grant, NOAA Grants Management Division (NOAA GMD), Nicaragua and Honduras (Gulf of Fonseca) funding recipients, and possibly other Government agencies and international organizations involved in funding disaster relief efforts. Time required of each subject will not exceed 10 hours including the initial interview and follow-up conversations to clarify and elaborate on the subjects answers.

Subjects will be contacted via telephone and/or email to ask if they are willing to be interviewed. If yes, then an interview will be scheduled (in-person, telephone or email) for a later date. Before conducting the interview, the subject will receive a background of the research, as well as a list of the questions to be asked. The consent form and information will be presented. Once consent is received, the interview will be conducted. Interviews may be taped for transcription purposes.

3. Benefits:

The benefits to the subject, NOAA, other Federal agencies, and/or end user include:

- With a framework available to implement funding quickly, those in most need will be able to receive necessary funds in a timely manner.
- This framework will provide all involved participants a routing map to quickly complete the necessary funding steps. Funding will not have to rely on institutional knowledge that may not be available. Anyone will be able to utilize the funding framework.

- Not only will this framework be useful for NOAA, but this framework may also be adaptable to other Federal agencies receiving international disaster funding.

4. Risks:

The interviews may be time consuming, thus the Principle Investigator will structure the interviews in the most time efficient manner. The subject's participation can be terminated at any time. If any information given to the interviewer can not be published, the subject needs to advise the interviewer of this, and the information will be removed for publication.

5. Confidentiality:

All answers are public knowledge, unless the subject advises the interviewer that certain information is not to be use for publication.

6. Alternative Procedures:

None

7. Subject's Assurance:

Whereas no assurance can be made concerning results that may be obtained (since results from investigational studies cannot be predicted) the researcher will take every precaution consistent with the best scientific practice. Participation in this project is completely voluntary, and subjects may withdraw from this study at any time without penalty, prejudice, or loss of benefits. Questions concerning the research should be directed to Nikola Garber at 202-669-3552. This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, Box 5147, Hattiesburg, MS 39406, (601) 266-6820. A copy of this form will be given to the participant.

8. Signatures:

In conformance with the federal guidelines, the signature of the subject or parent or guardian must appear on all written consent documents. The University also requires that the date and the signature of the person explaining the study to the subject appear on the consent form.

--	--

Signature of the Research Subject

Date

--	--

Signature of the Person Explaining the Study

Date

APPENDIX E

List Of Survey Participants

Mary Baker	NOAA Oceans Service
James Cato	Director, Florida Sea Grant program
Ruperto Chaparro	Extension Program Leader, Puerto Rico Sea Grant program
Brian DiGiacomo	DOC Office of the General Counsel, Chief, General Law Division
Robert Jubach	NOAA National Weather Service, NOAA Hurricane Mitch Agency Program Manager
Joseph Lombardo	United States Agency for International Development
Michelle McClelland	DOC Office of the General Counsel, Federal Assistance Law Division
James Murray	Extension Program Leader, NOAA Sea Grant
John Schwartz	Extension Program Leader, Michigan Sea Grant
Audrey Solis	U.S. General Accounting Office

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